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VETERINARY MEDICINE

March 1935

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Junior FORT DODGE BIO-CHEMIC REVIEW

MARCH 1935

ANNUAL MEETING ATTENDANCE GOOD

● That the troublous times have not endangered the stability of the veterinary profession has been re-demonstrated during the last 60 days by the excellent attendance at numerous state association annual meetings. Through their attendance, these practitioners of constructive viewpoints again showed their insatiable thirst for new knowledge and professional advancement.

Fort Dodge is grateful for the opportunity afforded at many of these meetings to greet personally our friends and customers, and to display and explain the features of our products.

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Veterinary Medicine

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D. M. Campbell, Editor A. T. Kinsley, Associate Editor
H. J. Mostyn, R.K.O. Bldg., New York, Eastern Representative

Vitamin C is produced commercially in powder form in Germany.

Carotene, the yellow coloring matter of plants, the basic material of vitamin A, was found to be abundant in bacteria by Ingraham and Baumann of the University of Wisconsin.—S. N. L.

Collip of McGill University gave hormone therapy a set back when he discovered that the continued use of such agents defeats its purpose by forming antihormones.

The recent belief that amidopyrine and related headache cures produce a fatal bone-marrow disease—agranulopenia—has been amply confirmed.

Cortin, the life-saving hormone of the suprarenal glands, can now be prepared in crystaline form. Its exact formula was determined by research at the Mayo Foundation.

Scientists at the University of Cincinnati, College of Medicine, have developed an effective anti-serum for undulant fever, according to their report to the American Society of Tropical Medicine. The serum is obtained from goats after inoculating them with chemically attenuated Brucella organisms. Twenty undulant fever patients were restored to health promptly by use of the serum.

Bovine amniotic fluid, concentrated, is employed as a vaccine to prevent post-operative peritonitis.

Streptococci associated with mastitis may survive for from 20 to 30 days in the dust, litter and bedding of contaminated barns and when subjected to ice box temperature, they may survive for a year, according to C. S. Bryan. Hence, the necessity of thorough cleaning and disinfection in the prevention and control of mastitis.

The irritant ingredient of cantharides, cantharidine, is located in the sexual organs of the fly. Stern (*Deut. Med. Woch.*) located the substance in the ovaries and the testicles. The rest of the fly's body is inert. He compares cantharidine to the sexual hormones of mammifers, and to that relation he attributes the excitant action of cantharides on the sexual organs.

Hemocultures of Brucella organisms were obtained in dogs the day following inoculations into the conjunctival sac, by ingestion and by applications to the skin. In goats and horses, from these combined inoculations, the organisms were recovered in the blood in three days. In the guinea pig, organisms were recovered in the adjacent lymph nodes in an hour but it required eight days before they appeared in the blood.—*Van der Hoeden, Tijd. v. Dierg.*

Cannibalism in pullets and hens is of considerable economic importance. It may be controlled, in part, and largely prevented, by providing raw meat scraps, liver, etc., in the diet and avoiding crowding. Pick out shields, either rubber or metal, have been devised by Moore of Michigan. These shields may solve the problem of preventing cannibalism.

* * * *

Rabies can and should be absolutely controlled. It is largely a problem of the worthless stray dog. Our antivivisection promoters with their absurd and ridiculous sentimental propaganda are the chief obstructionists in our program for the eradication of this most horrible of all diseases.—D. J. Davis, Dean, Univ. of Ill. Col. of Med.

* * * *

In the borderland of specific diseases common to animals and man, the most magnificent discoveries in the history of medicine have been made. Of these contributions, both veterinarians and physicians may well be proud. Some were made a generation or more ago; others more recently. However, it is most gratifying to note that at present there is no indication that interest is lagging or ideas lacking, for at no time has there been before all of us so many bristling problems.—D. J. Davis, Dean, U. of I. Col. of Med.

* * * *

The unity of human and veterinary medicine is a point of view accepted by all who understand the fundamental principles of diseases and their transmission. Exact and scientific observation has made this possible. When we consider the large number of diseases common to man and the lower animals, it seems unnecessary to dilate on this point. Many persons continue to maintain the point of view that human and veterinary medicine are separate fields of science largely because they grew up and developed separately and are practiced by different groups. This artificial distinction is unfortunate. The study of disease should not be based on such an illogical differentiation.—D. J. Davis, Dean, U. of I. Col. of Med.

It is reported that 74% of the medical students in Russia are women.

* * * *

Outbreaks of milkborne sore throat are dramatically reminding us of the great plagues in the centuries preceding sanitation. This disease is so serious that unless controlled, public health authorities may decide to debar all raw milk from the market. —D. J. Davis, Dean, Univ. of Ill. Col. of Med.

* * * *

The contributions of Bruce followed by a series of investigations both here and abroad on undulant fever have placed this many-sided disease in a position where it can be attacked and controlled as never before. Comparable as a problem with tuberculosis in some ways, it is certain of extinction in due time by the application of principles and practices now well known.—D. J. Davis, Dean, Univ. of Ill. Col. of Med.

* * * *

Rheumatism and arthritis in their various forms continue both in the human and animal world to occupy a position in the front rank and to present problems of a most puzzling character. The comparative pathology of arthritis in the human has never been studied adequately. At present the term is applied to a group of diseases possibly some of bone, some of nerves, others of muscle. Certain forms may be infectious, others may be nutritive. Some seem to be combinations of the above forms in varying proportions and in acute, subacute and chronic forms.—D. J. Davis, Dean, Univ. of Ill. Col. of Med.

* * * *

Hog Cholera

Hog cholera continues to present a real economic problem and is not being satisfactorily controlled on a nation-wide basis at the present time. The only way this disease can be combatted successfully is through the development of a nation-wide program involving restrictions as to the use of hog cholera virus, the more extensive use of and systematic practice of immunization, and the restriction of such practice to competent veterinarians.—*T. E. Robison.*

Since the days of Virgil, anthrax has challenged our science. Long ago we learned to control it, but it still remains a menace in unenlightened areas of the world.—D. J. Davis, Dean, Univ. of Ill., Col. of Med.

Encouraging results in the treatment of surra by the simultaneous injection of etharsanol and nazonol in nonlethal, but slightly toxic doses, was reported by Yutuc in the *Philippine Journal of Animal Industry*, January, 1934.

Seibert of the Henry Phibbs Institute, has succeeded in isolating in pure crystal form the allergy producing factor of tuberculin. Scientists have searched for this purified protein for 60 years. Theoretically its use should possess advantages over the use of tuberculin.

The Union of South Africa by Act of Parliament has enacted legislation compelling the stunning of all food animals before use of the knife. When animals are slaughtered in any number, they must be led in one by one. Cattle for Jewish or Mohammedan consumption are exempted from stunning but must be driven in one by one and mechanically cast.—*Our Dumb Animals*, 68:1.

Human biology and medicine are woefully backward in genetics compared with veterinary science. No medical college in the United States, with possibly one exception, gives a required course in this subject. The work in this field in its relation to medicine has never been well organized. Geneticists can be of real service to human medicine by applying the principles and facts they have worked out in animals to suitable studies in man. The mating and breeding of human beings are far more difficult than similar problems in animals for they are hemmed about with social, religious and even political prejudices and are all subject to the difficulties encountered in dealing with problems of psychology, sentiment and sex.—D. J. Davis, Dean, Univ. of Ill. Col. of Med.

In a report to the Academy of Science (France), Ramon and Lemethayer announced having transmitted infectious anemia (swamp fever) by applying the serum of an affected horse to a wound in a healthy one.—*Rev. Rec. de Méd. Vét.*

Equine dhobie itch, a persistent type of dermatitis, common in the Philippines, is caused by a micro-filaria, according to Underwood. Summer sores, another common skin disorder of army horses at Fort McKinley, Rizal, is caused by a Habronema and is successfully controlled by the application of glycerin 85 parts and phenol 15 parts.—*Exp. Sta. Rec.*, 71:4.

Due to their alarming increase in numbers throughout the country the black widow spider is believed likely to become a far greater menace than the rattle snake, which is found only in isolated places, whereas these poisonous spiders are invading cities. Several deaths from their bites have been reported in the United States in the past two years.

VETERINARY RESERVE AGAIN MAKES UNSATISFACTORY SHOWING

The annual report of the Surgeon General of the Army reveals that the number of officers in the Veterinary Reserve decreased 9.57 per cent during the fiscal year ending June 30, 1934—from 1,024 to 926. The loss in number the preceding year was 2.7 per cent—28 officers. The Surgeon General declares the condition "a matter of grave concern." The Veterinary Reserve is now 60 per cent short of the very moderate objective set in the War Department mobilization plans. There were 133 new appointments in the corps during the year and 231 separations from it. The accessions were largely from the veterinary R. O. T. C. With this source of new officers shut off after next June, we may expect to see the decrease much accellerated unless organized veterinary medicine takes measures to improve the standing of the profession in this respect.

EPONYMIC TERMS IN MEDICINE

The eustachian tube was named for B. Eustachio, an Italian anatomist of the 16th century.

Bartholin's glands and Bartholin's duct are named for Casper Thomesen Bartholinus (1655-1738), Danish physician, who taught anatomy at Copenhagen.

Bellini's ducts (the excretory ducts of the kidneys) take their name from Lorenzo Bellini (1643-1704), Italian physician and anatomist born at Florence.

Bichat's canal, Bichat's fat-ball and Bichat's fissure derive their names from Marie Francois Xavier Bichat (1771-1802), French anatomist and physiologist.

Camper's angle (facial angle, maxillary angle), Camper's line, etc., are named for Peter Camper (1722-89), Dutch anatomist and naturalist, born at Leiden.

Corti's arches, tunnels, rods, etc., take their names from Corti, Italian scientist (1729-1813).

The clivius Blumenbachii takes its name from Johann Friedrich Blumenbach (1752-1840), German physiologist and anthropologist.

Flint's murmur (secondary murmur with a rumbling sound frequently heard at the apex of the heart in aortic incompetency) takes its name from Austin Flint (1812-86), famous American physician.

Hunter's canal and Hunter's method (ligation of an artery on the proximal side of and at a distance from an aneurism) derive their names from John Hunter (1728-93), British physiologist and surgeon.

Mariotte's spot (the blind spot on the retina) takes its name from the physicist, Edme Mariotte (1620-84), French Abbé and prior of St. Martin sous Beaune.

Müller's ducts, fibres, muscle, etc., are named for Johannes Peter Müller (1801-58), Germany physiologist and comparative anatomist, born at Coblenz.

Schultze's cells, granule masses, etc., were named for Max Johann Sigismund Schultze (1825-74), German microscopic anatomist.

Willis's chords, circle, etc., are named for Thomas Willis (1621-75), English physician and anatomist.

Winslow's foramen takes its name from J. B. Winslow (1669-1760), a Danish physician of Paris.

The Wolffian body (the mesonephros or primitive kidney) gets its name from Caspar Friedrich Wolff (1733-94), German anatomist and physiologist, who is generally reckoned the founder of modern embryology.

Wrisberg's abdominal brain (the solar plexus), ansa, cartilages, etc., take their names from H. A. Wrisberg (1739-1808), German anatomist.

Schwann's membrane, sheath, etc., derive their names from Theodor Schwann (1810-82), German physiologist.

Daubenton's line, angle and plane take their names from Louis Jean Marie Daubenton (1716-1800), French physician and naturalist.

—Medical Facts, The Denver Chemical Mfg. Co.

Dihydrodesoxymorphine-D is the name given a new drug, a derivative of morphine, ten times as effective as the latter and thought not to be habit forming. Tests are being made to establish this point definitely.

* * * *

Accidental importation of the mosaic disease of sugar cane cost the sugar cane industry in this country over $100,000,000 before it was finally brought under control.—*S. N. L.*, 15:672.

* * * *

Twelfth International Veterinary Congress

Probably the outstanding event of the year was the assembly of the Twelfth International Veterinary Congress in the United States. This proved to be the largest, most representative livestock and veterinary meeting of its kind ever held.

Time permits but a brief reference to its many phases. Its work will be reflected throughout this country and the world for years to come. It was a convention comprising leading veterinarians, sanitary officials and live stock owners of sixty-one nations with a registered delegate attendance of 755 persons, exclusive of the United States, and a total attendance of approximatetly 3,800.

Among the features of this Congress was an extensive educational exhibit, ably staging and portraying in a most vivid manner methods of combating some of our more important contagious and infectious diseases.

The addresses and papers presented at the Congress constituted a most important page in American veterinary history and summarized the most up to date information in the world today on these questions.

A unique feature in connection with the convention was the broadcasting of six addresses over a nation-wide NBC hookup during the Farm and Home hour of the United States Department of Agriculture. Three short-wave stations were included in the hookup which made it possible for these addresses to be heard around the world.—T. E. Robison, Presidential Address, 38th Annual Meeting of the U. S. Live Stock Sanitary Ass'n, Chicago, Dec. 5, 1934.

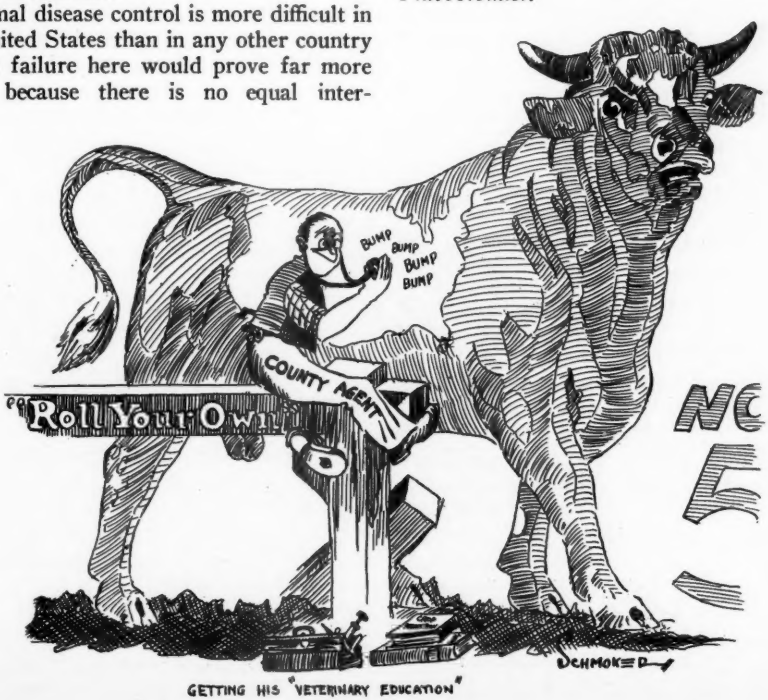
Achievements of Veterinarians

The veterinarian alone has succeeded in handling livestock disease control measures. As evidence of the importance of the veterinarian in achieving the control of livestock disease, witness the fact that veterinary colleges are maintained in every important livestock country in the world at public expense. In Latin America the greatest handicap to the development of the livestock industry and to the exporting of animals and animal food products has been the uncontrolled ravages of contagious diseases, which condition is due largely to the recognized lack of practicing veterinarians. Another outstanding example is to be found in Soviet Russia, where one of the most important contributing factors to the collapse of the five-year plan in agricultural production was the failure to provide adequate veterinary service, resulting in loss of animals from disease.

Animal disease control is more difficult in the United States than in any other country and its failure here would prove far more costly because there is no equal interchange of breeding stock or dairy animals and feeder stock in any other country. The traffic in feeder stock is, practically speaking, peculiar to this country. This large interchange of traffic allows contagious diseases innumerable opportunities for spread that they would not otherwise have. Yet the fact remains that our livestock industry, as at present constituted, is dependent upon this traffic.—*Rept. Special Com. on Agr. Extensions, A. V. M. A., 1933.*

* * * *

The maggot treatment of bone injuries, called to the attention of army surgeons by Doctor Crile, of Cleveland, during the World War, is not new. The possible beneficial work of these larvae was noted by Paré, in the 16th century and the value of maggots in removing necrotic and putrefying tissue in wounds was recognized by Larrey, a French surgeon, shortly after the Napoleonic campaign in Egypt.—*Bloodless Phlebotomist.*



GETTING HIS "VETERINARY EDUCATION"

Violent Opposition to Health Measures

It should be needless to repeat that without any generally known exception the producers of animal food products have opposed "to the last trench" efforts to safeguard the public against the sale of unsalubrious meat and milk. Veterinary historians who have traced the art of meat inspection to its source, invariably point out the "violent opposition" of the butchers to official nterference with their affairs. Moses, in his wisdom, found it expedient to impose meat inspection upon the Israelites by means of religious rites. Galen pointed out the importance of inspecting animals whose flesh was to be prepared for human alimentation. The Romans classified butchers for the different species of meat animals and regulated their practices. The Barbarians who raided Rome in the fifth century, were even more particular than their vanquished foes. France formulated meat inspection laws during the twelfth century and, thereafter, gradually shaped the regulations in accordance with contemporary knowledge of animal diseases and their relationship to the people's health. The use of the meat of animals that had died of disease was the common practice in London in the second half of the nineteenth century and even the great influence of Gamgee could not oppose it successfully.

The United States was over a century old before its population was accorded the protection food inspection affords, and up to the present day the "violent opposition" to restrictive measures, pointed out by researching authors, remains extant in states and cities. During the twentieth century opponents have fought health measures through the United States Supreme Court. The "Iowa Tuberculosis War" is an affair of yesterday. The courts of Minnesota, Iowa, New York, and other states have had to uphold the regulatory bureaus against the "violent oppositions" to their intrusions. Less than two years ago it required a pronouncement by a United States District Court to enforce regulations restricting the interstate shipment of cows infected with Bang's disease. Truly, those who supply the people with their principal articles of alimentation—meat and milk—have displayed "violent opposition" to the enforcement of health measures.

Except in isolated places, local, municipal and state meat inspection is practically a non-entity among American people. Farmers object with pitchforks, shotgun, and courts, yielding ground here and there, only after formidable opposition. Plainly, protecting the people's health is not in the agenda of the agricultural industry, and yet in the states agriculture is the boss of the situation.

That organized agriculture should take the initiative in creating and supporting public health projects related to it, is no longer debatable, nor is it any longer debatable that the veterinary service of the states belongs in the public health service. The present alliance is irrelevant. The veterinary profession can not subscribe to "violent opposition" to health measures and, therefore, cannot be faithful to the program of its present employer.

If a bill were introduced today in the state legislature of any one of at least 40 of the states, providing that no meat or meat products, milk or other dairy products could be sold to its citizens for food unless such products were from animals shown by competent examination to be healthy, and were produced and handled from origin to consumer in a cleanly, hygienic manner, would organized agriculture support it? Just suppose such a bill required that all animals slaughtered for food, whether in city abattoirs, village slaughter houses (hold the nose) or on farms, be examined by a veterinary pathologist and the meat pronounced wholesome before it could be sold; and suppose further that the bill provided that all cows producing milk for sale as fluid milk, or for the manufacture of butter, cheese, ice cream or other food products, must be shown to be healthy by competent examination and the products of the dairy handled in a sanitary manner. Would such a public health measure engender "violent opposition" and if so, from whom? Would any good citizen or any patriotic organization

oppose an effort of the government to assure its citizens a wholesome food supply—meat and milk that is fit to eat? If we may judge by what has occurred in the past—such a measure would be "violently opposed" by every cattle, swine, sheep and poultry breeders' or growers' association in the state, by every dairy association, by the state department of agriculture, the agricultural extension service of the state, the farm bureau organization and every live stock and dairy publication of general circulation in the state. Specious argument without end would be adduced to support the "right" of the producer to sell in the food mart the product of a diseased animal or of filthy, unsanitary methods.

In this as in many other matters, agriculture and its leaders are short-sighted. There is no quicker, surer or more effective way to increase the market for food products of animal origin than to raise the confidence of the public in their wholesomeness. The amount of meat and dairy products that the average citizen consumes is largely optional with him. He can, if he believes it best to do so, get along with little of such products. Some millions of average citizens entertain some doubts about the wholesomeness of market meat (except federally inspected), milk, cream, butter, cheese, etc. The modern automobile and paved roads have enticed millions of consumers past hog lots knee deep in slime and dairy sheds easier to move than their manure content. Some of them wonder about the wholesomeness of food from such sources. It would be highly profitable for the producers of meat and dairy products to give them some assurances in the form of certification by a competent agency, independent of the industry.

* * * *

Trypanosoma brucei, the cause of nagana, a disease of domestic animals in South Africa, is transmissible to various game animals. In members of the deer family it did not seem to cause disease, but it proved fatal to a jackal. *Trypanosoma congolense* proved likewise pathogenic to the jackal, but harmless to the pig.—*Annals Trop. Med. and Paras.* 28(1):41-45.

The boar, according to Krallinger and Schott, has no influence on the number of pigs in the litter. This statement is based on 75 comparisons of mating the same sows with different boars.—*Exp. Sta. Rec.*, 71:4.

* * * *

WORLD FANCIER CONGRESS

From the 22nd to the 25th April, 1935, there will take place, at Frankfurt-on-Main, the Third World Fancier Congress of the Fédération Cynologique Internationale (FCI). The organization is in the hands of the Reichsverband fuer das Deuetsche Hundewesen (RDH). Two highly important questions will receive consideration, namely:

1. *The Inheritance in the Breeding of Thoroughbred Dogs*

a. The basic rules of the inheritance and their application to the breeding of thoroughbred dogs.

b. The inheritance of body-properties. The outward forms of the dog. The texture of coat, the color, etc.

c. The inheritance of mental properties. Intelligence (mind). Temperament. Character. Sight. Hearing.

d. The inheritance of the olfactory powers and the breeding-purposes resulting therefrom.

2. *The Loan of a Non-mated Bitch for Breeding Purposes*

The principal reporters are:

On 1a. Professor Dr. Henseler, Munich.
On 1b. Comm. Prof. A. Pirocchi, Milan.
On 1c. Dr. F. Méry, Paris.
On 1d. Major Konrad Most, Berlin.
On 2. Mr. O'Breen, Brussels.

Admitted as members to the Congress are:

1. Delegates of the canine societies affiliated to the F. C. I.

2. Delegates of other canine governing bodies, who are specially invited.

3. Delegates of the affiliated societies mentioned under 1 and 2.

4. All the members of these canine governing bodies.

5. Technical experts, who will be invited either by these canine governing bodies or by the RDH.

The discussions will commence on the 22nd April, at 9 a. m. and will end on the 25th April, at 6:30 p. m. Particulars are given in the program of the Congress, which may be obtained from the manager. Thirty foreign fancier societies have already declared their intention to attend the Congress.

In connection with this Congress there will be held, in all the showhalls of the Messe—and Show-Society Ltd., of the city of Frankfurt-on-Main, the first World Show for all breeds of dogs, from the 26th to the 28th April, 1935. This fixture, the first of its kind, will represent breeds of dogs of the world, and the participation from abroad promises to be large.

All the particulars of the Congress and the World Show may be obtained from the Manager, Fr. Bazille, Rotenwaldstr. 83a, Stuttgart-W., Germany.

Barber or Surgeon and Veterinarian or Specialist

Veterinary medicine is a field so broad as to necessitate much consideration by each of us. An article such as "Barber or Surgeon" in the January issue of VETERINARY MEDICINE narrows the viewpoint to such an extent that one is forced to keep his eyes on the path to keep from falling off, and is therefore unable to detect the deviations. I am impelled to answer the venerable one who saw fit to differentiate between what the old and the younger generation is doing, because I happen to be on the other side of the fence. This incessant harping on the young fellow and the mistakes he makes, irritates me considerably. The only veterinarian that never made a mistake died before he began practice.

With this thought in mind, I will endeavor to show that veterinary medicine as practiced today depends to a considerable extent on circumstances. Is the venerable author of "Barber or Surgeon" in a locality where there is enough surgical work to warrant making a specialty of it, or is surgery the only thing pertaining to animals considered professional? Is he financially established or is he just out of school and trying to get along? Is he a professor of some university with a prejudiced theoretical viewpoint, a man sitting on the inside looking out, or is he a through and through practitioner on the outside doing the work? Would he advocate every veterinarian specializing? What do you suppose would happen to a territory capable of supporting only one man if that man should refuse to meet emergencies as they arise because they did not fall within his specialty? What do you suppose would happen to that individual?

Veterinary medicine is on a much higher plane today than ever before and we are steadily progressing. Emphatically our progress is not due entirely to the older minds of the past generation. In most cases a man should be capable of being an all-round practitioner, of some ability, to be an asset to himself and to his community. Shall we do only the things we consider important and send the minor things away? Are minor so-called operations too trivial to handle? Everyone has a certain amount of conceit. He convinces himself that he has some ability and inspires himself to do better. A man to do his best must have confidence in himself and superior knowledge is only a matter of study.

I believe the person of ordinary intelligence knows the difference between an ordinary kennel and one associated with a veterinary hospital. On all the signs I have noticed on veterinarians' premises, where it announces bathing, clipping, stripping and boarding, these words are in less conspicuous letters than the word hospital. As to boarding, shall we be considerate enough to people that support us to care for their animals while they are away, or shall we help to create a veterinary atmosphere at the kennelman's place of business by constantly sending our clients there? After all, it is human nature to ask what to do and how to do it. Did it ever occur to my venerable confrere that the routine treatment begins in many cases, with a bath? Or that skin eruptions may be the result of filth or external parasites and necessitate bathing? Does the average owner want to be told what to do or does he bring his ailing animal to the veterinarian to have him do something? Is the owner ordinarily willing to do the work himself and pay for it also? Isn't a person wholly attached to his pets inclined to board them where they may be given profesisonal care in case of unforeseen happenings?

In any event, where have you ever seen a hospital of any size or importance that didn't have experienced employes and does the veterinarian necessarily do the bathing and the clipping? Isn't the veterinarian's helper a kennelman just as surely as the kennelman in the next block who owns his place of business and, on the average, isn't he just as skillful?

I noticed also the emphasis placed on the drawing of blood samples, a necessary procedure in one of the greatest campaigns of the dairy cattle industry. Would you allow an individual of low mentality to determine the culling of a man's valuable herd? The

average practitioner realizes this job is disagreeable, but attends to it as a matter of duty.

I have friends in the profession who raise dogs and who delight in preparing animals for the show, for the sheer enjoyment they get out of it. Regardless of the fact that they are associated with animals constantly, they have this diversion as a hobby. I presume they should turn this work over to a professional handler and take up golf. Well, personally I'm not old enough for golf.

In summing up this article let me say that environment combined with financial circumstances and personal taste are wholly responsible for the way we exist. I don't advocate doing a layman's work, nor a layman doing my work. After all, who knows enough to draw the line for the other fellow?

Raymond F. Witt.

Worcester, Mass.

Do You Remember?

1. Question. What are sibs and of what value are they?

Answer. Sibs are indications of the genetic constitution of any animal as seen from an analysis of the character of its sisters and brothers. Sibs is a contraction of the words "sisters" and "brothers" and is a record of the different characters of the sisters and brothers of any individual. From these records the value of an individual for breeding may be determined with considerable accuracy. These are commonly used in poultry breeding.

2. Q. About how many eggs is it necessary to incubate to obtain one hundred good laying pullets?

A. In general it is safe to figure that 65% of the eggs incubated or set will hatch; 80% of these chicks will be raised; 50% of these young chickens will be pullets, and 25% of these pullets will be culled out; therefore it is generally necessary to incubate five hundred eggs for each 100 good pullets obtained.

3. Q. At what periods of incubation does the highest mortality of chick embryos take place?

A. The highest periods of mortality of chick embryos takes place on the fourth and the nineteenth days. About the fourth day, the vitelline circulation is inadequate and the allantoic circulation has not yet started sufficiently to maintain the embryo's previous rate of development; it has been shown that 7% die then. On the 19th day the mortality is 20%.

4. Q. When and how is chick sexing done?

A. The most practical method was evolved recently by the Japanese and consists of differentiating the sexes by means of papillae on the vent of chicks five to twenty-four hours old. Some of the more experienced chick sexers will guarantee as high as 95% accuracy by this method.

5. Q. What is a general rule for determining the approximate temperature necessary for brooding chicks of different ages?

A. Although many factors must be considered in determining the actual temperature at which chicks should be brooded, a basic rule is to maintain a temperature of 90°F. under the hover during the first week, and reduce it 5°F. each week thereafter until a temperature of 65°F. is reached. If they have a chance to escape to cooler surroundings, chicks may be started at a temperature of 100°F. under the hover.

6. Q. Is cannibalism usually due to a dietary deficiency?

A. Cannibalism may be caused by an improper diet, but it is usually caused by other factors such as overcrowding, high brooder temperatures, bright lights, new feathering, lack of exercise, wounds, etc.

7. Q. How many pounds of feed are required to produce a two-pound broiler?

A. Under ordinary good conditions, it requires about eight pounds of feed.

8. Q. What is perosis and to what is it due?

A. Perosis or slipped tendon is a disfiguration of the leg due to the achilles tendon slipping to one side of the hock causing this joint to become enlarged and flattened. It is caused by a too high proportion of minerals in the ration of chicks around five weeks of age.

Wesley O. Keefer.

Columbus, Ohio.

Some Thoughts on Human and Veterinary Medicine

L. A. MERILLAT,
Chicago, Illinois

VETERINARY medicine was erected around the horse, known as "the type." Anatomy comprised the horse, a fringe of cow and in some rare instances a bit of dog added at the end of each chapter. Materia medica was much the same and physiology was human without notable alteration. General pathology, for good reason, was also human, and special pathology wandered from the horse only to dwell upon some ailment foreign to it.

The justification for choosing the horse for comparative purposes was ample. The horse was king of the realm. Until the coming of mechanical contrivances in the nineteenth century, the horse, the ass and their hybrid progeny were man's best motor power and means of travel by land. Man was not able to find anything stronger or faster during the first thirty-five centuries of known history.

When nomad tribes and pastoral people became nations and nations acquired the notion of warring upon one another for supremacy, the horse was the best instrument of war and peacetime projects. It mounted the soldiers and fed the folks at home. The conquerors needed the horse more than modern nations need battleships, long range guns, airplanes and toxic gas. From the first Caesar to the present dictators, kings, premiers and presidents, conditions did not change. The ratio of horses to army personnel was higher during the World War than in any war of history and the synoptic tableau of the field armies of 1935 appears to fix the limit of horses and mules at maximum availability. In peace their numbers remain legion and their values stable.

WITH these facts in mind, the selection of the horse as the type around which to build knowledge of animal diseases was not undeserved nor illogical. Wisely, the human being was never considered seriously as a suitable "type" for the study of veterinary medicine. The reason is apparent. Beyond the realm of generalities, man's biological set up never appealed to the profound student of the animal clinic. The mental, physical, chemical and functional anomalies, not the direction of the backbone, are what interpose the wide avenue between man and beast and give preference to one of the latter as the base of the veterinary-medical curriculum.

From the standpoint of classical therapeutics which is the *raison d'être* of medicine, there is more in common among the different species of animals than between the human being and the animal group. In the details of the art, if not also the science of medicine, human and veterinary medicine part from the very onset. The family physician is about as useful in the hog lot as the veterinarian in the bedroom, and as medicine advances, therapeutics becomes too eclectic for the veterinarian to look no farther into his art than the conventional practices and prescriptions of the family physician.

That imitating the physician does not work appears to have been realized by the early teachers of veterinary medicine. They had excellent human anatomies as a point of departure, but wisely chose to establish an animal as the type species, and write their own. The same thought followed in the development of the other branches (pathology, physiology, pharmacology), for, beyond the study of mere shape, relation and dimension of the physical components of the body, the other disagreements between human and veterinary medicine more completely divorced them.

IN THE process of refinement, the science of medicine as much as the art, has separated the different species to the extent that knowledge and skill, except in the most

general way, are not interchangeable. Canine medicine is one thing, equine medicine another, and human medicine is foreign to both. The distinction becomes more clear as medicine becomes more exact. "Good for man and beast" belongs to the era of quackery. Nutrition alone disqualifies that platitude. The physical and chemical constitution of the blood and other liquids, the nervous system, longevity, the mesological factors in animal life, the reaction to infections and interventions are so many, among other agencies, which separate human from animal medicine and the latter into as many components as there are species.

Except for the basic knowledge animals furnish and the etiological rôle they play in human medicine, the gap separating the one from the other widens rather than closes with the march of science. In the art of the two medicines, there can never be much similitude between the barnyard operation and the immaculate whiteness of the human surgery, nor in the kind of operation the one or the other presents to the surgeon. The same differences exist in internal medicine and prophylaxis. To illustrate, one needs only recall the perturbations of the most capable equine clinician who attempts to practice canine medicine unprepared, or *vice versa.* The technical more than the psychological factors baffle the one who attempts to make such a transition unqualified.

The fundamental generalities of medicine are feeble concepts when one is confronted with a problematic syndrome or puzzling disease, peculiar to a certain species. Specialization in veterinary medicine is not a fad; it is a necessity involving species peculiarities, a knowledge of which underlies real progress. As fast as the biological sciences clarify species variations, the good clinician applies the newly acquired knowledge to his therapeutic methods, and each step forward separates still farther the kindred branches of veterinary medicine from one another and the group from human medicine. In the study of blood, normal and pathological, for example, the picture of one is of little use in the study of the other. But this is but one of as many examples as there are tissues, organs and apparatus in the body of beings coming under the science and application of medicine.

THE lesson is that veterinary medicine must develop from its own investigational work. If it cannot lead or at least parallel human medicine it does not deserve a place above the rank of second fiddle. Veterinarians cannot just ape the human physician and accept unchallenged his every precept without ranking as second rate imitators. In clinical work the teachings of one do not apply to the other at all, and the fact that one species can be refractory to an agency to which others are completely immune, shows how far the science of the different species branches of medicine part company. Whether the factor is a contagion or a chemical, the variations exist. In fact, the variability of reactions to infections is a good illustration of the medicinal variations to which the different species are entitled in the hands of those who undertake to treat them.

It is, therefore, a technical error to forsake medicine strictly veterinary for the customs of the human clinic. In the final analysis, there seems to be nothing of the higher order in the therapeutics of animal diseases that will perpetuate its traditional empiricism with more certainty than to forsake the originality by which scientific projects are judged, in order to copy the so-called brother profession.

IF IT is necessary, and that is doubtful, to build veterinary medicine around a type species, that species should be an animal, not man. In both the science and the application of medicine the contrast between man and beast is too great for blind interchanges of therapeutic ideas. Veterinary medicine will reach the level it attains only through its own researches and investigations. The most brilliant work in human medicine cannot, alone, uplift the animal clinic.

BECAUSE human and veterinary medicine are coming to a better understanding through the rôle played by animals in

public health it has been proposed that veterinary medicine cultivate a closer study of human medicine by adopting man as the type species. The suggestion is out of order. The reverse would be more consistent. Human medicine is more obligated to make a close study of animal medicine than is veterinary medicine to study the human clinic. In human health, veterinary medicine stops with the control of animal diseases. There can be no gain in burdening the already over-crowded veterinary curriculum. And, moreover, except for the need of a new order of things in text books, there is no longer a need for type species in the study of veterinary medicine. If the old order of studying the horse as a type was convenient it is now archaic. But, what is still more out of order is trying to make human and veterinary pharmacology interchangeable, to be more exact, trying to imitate rather than to duplicate the achievements of human medicine. Veterinary medicine must develop its own therapeutics or cease to develop.

Drugs and chemicals consecrated by test and time in human medicine have too long been acceptable to the veterinarian at par with no further study than computing the dose from body weight. It seems that a new era of chemotherapy is dawning but it can eventuate for veterinary medicine only through exacting veterinary research. The new knowledge of bio-chemistry, nutrition, and nervous physiology demands a more specialized medication than that handed over from human medicine.

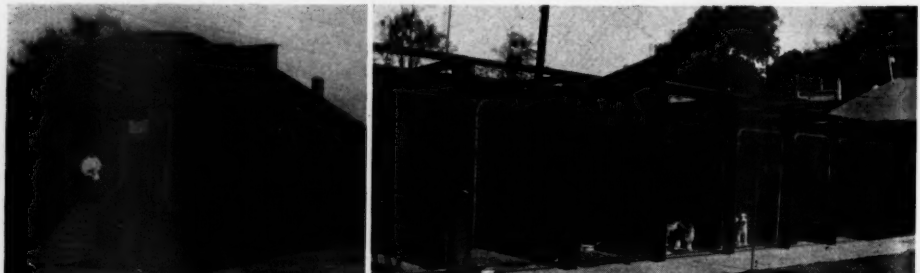
Steamed Bone Meal

This is a packing house product in which the bones have been subjected to a cooking process under pressure. The fat and nearly all of the protein of the bone are removed. After this the bones are dried and ground. The steamed bone meal prepared for feeding purposes is practically free of odor and is a wholesome product.

A Veterinary History of North Carolina

The North Carolina State Veterinary Medical Association has authorized the publication of a brief history of veterinary medicine in North Carolina, and the record has been compiled by Drs. Wm. Moore, L. J. Faulhaber and J. H. Brown.

The pamphlet gives a short account of all meetings of the state association, excepting the first six of which the records have been lost; a list of the members of the association, and of all other licensed veterinarians in the state; the Veterinary Department of the State College; the office of State Veterinarian; the work of the federal Bureau of Animal Industry in North Carolina, and other matters concerning veterinarians and veterinary matters in North Carolina.



New small animal hospital and outdoor kennel of Dr. P. H. Browning, San Jose, California.

Plans for Controlling Bovine Mastitis

Owners of cattle affected with mastitis may take advantage of federal emergency funds for combating the disease through the assistance of the U. S. Department of Agriculture. This work is authorized by a new regulation designated as B. A. I. Order 351, effective January 2, 1935. The order, which will be administered by the Bureau of Animal Industry and cooperating state and local sanitary officials, provides that any owner may apply for the examination of his herd by an accredited veterinarian representing the Bureau or state. Cows that show marked physical evidence of mastitis will then be removed and slaughtered and indemnities paid to the owner according to the appraised value.

Funds amounting to $800,000 for conducting this work and for the payment of indemnities have been allotted by the Agricultural Adjustment Administration. Similar emergency work was begun during the summer with bovine tuberculosis and Bang's disease of cattle, and the new order extends the disease-control work to another cattle disease that is the source of heavy losses to dairymen.

The payment of indemnities for cows eliminated from a herd are to be made on the same basis as for tuberculosis and Bang's disease. The indemnity for a grade cow shall not exceed $20 and for a registered purebred $50; the owner also receives the salvage for each animal slaughtered. Animals on which indemnities are to be paid must be marketed for slaughter within a period of 30 days after the date of appraisal. Mastitis control may be conducted only in herds which are under state and federal supervision for tuberculosis and Bang's disease, or where the owner agrees to carry on such work.

In addition to aiding herd owners in eliminating any animals found to be badly infected with mastitis, the Department also offers suggestions for controlling the spread of infection by a special program of management. Such a program consists in detection of infected animals by a qualified veterinarian and the use of the following sanitary measures.

When each animal in a herd has been examined and the condition of the udder determined, the animals with marked cases of mastitis should be removed from the herd and slaughtered. They are of little value and are the chief source of infection. They will be paid for as provided above. The herd owner should then divide the remaining animals into three groups, the healthy cows in one, those which are suspected of having the disease in another, and, finally animals which have slight cases of mastitis in the third group. He should then take precautions to keep the disease under control.

Before milking, all udders should be thoroughly cleaned and washed in a suitable chlorine solution of a strength to kill mastitis germs. The healthy cows should be stabled separately from the others if possible and milked before either of the other groups. The cows known to have the disease should always be milked last. The milker should take special precaution to wash his hands in warm soapy water or chlorine solution and dry them before milking the next animal. If a milking machine is used, the teat cups should be rinsed in a chlorine solution before each cow is milked. After milking, the teats of each cow should be dipped in a chlorine solution to disinfect the ends and any milk that remains on them. Between milkings the milking machine should be thoroughly cleaned and disinfected.

If these suggestions are strictly followed, there should be no further spread of the disease to the healthy animals. Also there should be a reduction in the severity of the disease in the affected group. The detailed procedure for controlling bovine mastitis is published and may be obtained, on request, from the Bureau of Animal Industry, U. S. Department of Agriculture.

Official Ointments and Cerates Used in Veterinary Medicine*

By HORACE M. CARTER,[1]
New York, New York

THE veterinarian, in common with the physician and the dentist, is fast becoming "official-minded." The practicing veterinarian of today realizes the importance of becoming thoroughly familiar with those official substances and preparations of the United States Pharmacopoeia and the National Formulary which are used in the every-day practice of his profession.

Winslow, in his Veterinary Materia Medica and Therapeutics, lists twenty-seven ointments and cerates which are official in either the United States Pharmacopoeia or the National Formulary. Ointments and cerates are of especial interest to the veterinarian; the frequency with which these two classes of official preparations are used fully establishes their importance in veterinary medicine.

Ointments

Ointments are intended solely for external application; they melt at the temperature of the body, and are applied either with or without friction. Ointments are used for either their local or general (systemic) action and whether the medicinal action is local or systemic depends upon the nature of the medicinal substance and upon the nature of the ointment base.

In regard to their therapeutic effect, ointments may be divided into three distinct classes:

1. *Epidermatic* ointments are intended to act only upon the outer skin or epidermis. Ointments of this type are protective, nonabsorbable, and act as antiseptics, astringents, counter-irritants, parasiticides, and germicides. The ointment base is usually a mixture of petrolatum and paraffin.

2. *Endermatic* ointments are intended to penetrate into, but not through the skin. Ointments of this type are emollient, possess absorbefacient properties, and act as anodynes, resolvents, alteratives, stimulants, and local irritants. The ointment base may be lard, a mixture of lard and wax, lard and almond oil or olive oil, almond oil or olive oil and wax, almond oil or olive oil with wax and spermaceti. The absorbent properties of these substances allow the admixture of medicinal agents in the form of solution either in alcohol, water, glycerin, or oleic acid.

3. *Diadermatic* ointments are intended to penetrate not only into but through the skin to produce systemic or constitutional effects. Ointments of this type are absorbable, and include special uses of narcotics, iodides, mercurials, belladonna, etc. The ointment base is wool fat which possesses the property of readily combining with its own weight of water.

Ointment bases may also be classified into:

1. *Solids*: white wax, yellow wax, paraffin, spermaceti, stearic acid, ceresin, cacao butter.

2. *Semi-solids*: white petrolatum, yellow petrolatum, benzoinated lard, benzoinated suet, wool fat, lanolin, soft soap.

3. *Liquids*: liquid petrolatum, oleic acid, almond oil, olive oil.

Ointments are prepared by two general methods:

1. *Incorporation,* which consists of triturating the medicinal substance with the base, using a mortar and pestle or, by "rubbing-up" the medicinal substance with the base, using an ointment slab and spatula.

2. *Fusion,* which consists in melting the base, adding the medicinal substance and, after removal from the source of heat, stir-

*Presented at a meeting of the Hudson Valley Veterinary Medical Association, Bronxville, N. Y.

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ring the product until a homogeneous mixture results.

In addition, one ointment, ointment of mercuric nitrate, is the only official ointment which is prepared by chemical reaction.

Cerates

CERATES, like ointments, are intended solely for external application. The official cerates always contain either white wax or yellow wax as one of the ingredients; thus the cerates are firmer in consistency than the ointments. Cerates, unlike ointments, do not melt at body temperature and are used chiefly as dressing by spreading upon paper or cloth and applying in a manner similar to the application of a spread plaster. Cerates are usually prepared by the method of fusion.

The following is the list of the official ointments used in veterinary medicine:

Unguentum U.S.P.
(Ointment)

Yellow Wax	200 Gm.
Benzoinated Lard	800 Gm.

Prepared by the method of fusion.
Synonym: Simple Ointment.
Uses: Emollient, a base for other ointments.

Unguentum Acidi Borici U.S.P.
(Ointment of Boric Acid)

Boric Acid	100 Gm.
Yellow Wax	50 Gm.
Petrolatum	850 Gm.

Prepared by the method of fusion.
Uses: A mild, non-irritating, antiseptic ointment.

Unguentum Acidi Tannici U.S.P.
(Ointment of Tannic Acid)

Tannic Acid	20 Gm.
Glycerin	20 Gm.
Ointment	60 Gm.

Prepared by the method of incorporation.
Uses: A valuable astringent in the treatment of local inflammatory lesions, hemorrhoids, rectal fissures, ulcers, or prolapse of the rectum.

Unguentum Belladonnae U.S.P.
(Belladonna Ointment)

Pilular Extract of Belladonna	10 Gm.
Diluted Alcohol	5 c.c.
Wool Fat	30 Gm.
Yellow Wax	5 Gm.
Petrolatum	50 Gm.

Prepared by the method of fusion.
Uses: An anodyne.

Unguentum Calaminae N.F.
(Calamine Ointment)

Prepared Calamine	17 Gm.
Ointment	83 Gm.

Prepared by the method of incorporation.
Synonym: Turner's Cerate.
Uses: A mildly astringent protective dressing.

Unguentum Chrysarobini U.S.P.
(Chrysarobin Ointment)

Chrysarobin	6 Gm.
Hydrous Wool Fat	94 Gm.

Prepared by the method of fusion.
Uses: A parasiticide in the treatment of ring worm, and as a stimulant to the skin in cutaneous disorders, as eczema and alopecia areata.

Unguentum Gallae U.S.P.
(Nutgall Ointment)

Nutgall	20 Gm.
Ointment	80 Gm.

Prepared by the method of incorporation.
Uses: An application in the treatment of hemorrhoids and rectal fissures.

Unguentum Hydrargyri Ammoniati U.S.P.
(Ointment of Ammoniated Mercury)

Ammoniated Mercury	10 Gm.
Liquid Petrolatum	10 Gm.
Hydrous Wool Fat	40 Gm.
White Petrolatum	40 Gm.

Prepared by the method of fusion.
Synonym: White Precipitate Ointment.
Uses: Exercises a stimulant action in the treatment of granular lids, chronic eczema, pityriasis, and an antiparasitic effect in the treatment of ring worm.

Unguentum Hydrargyri Mite U.S.P.
(Mild Mercurial Ointment)

Stronger Mercurial Ointment	600 Gm.
Petrolatum	200 Gm.
Ointment	200 Gm.

Prepared by the method of incorporation.
Synonym: Blue Ointment.
Uses: An antiparasitic, possesses sorbefacient properties, relieves the itching in skin diseases, as chronic eczema and psoriasis.

Unguentum Hydrargyri Nitratis N.F.
(Ointment of Mercuric Nitrate)

Mercury	7 Gm.
Nitric Acid	17.5 Gm.
Lard	76 Gm.

Prepared by chemical reaction.
Synonym: Citrine Ointment.
Uses: Similar in action to ointment of ammoniated mercury but more powerful.

Unguentum Hydrargyri Oxidi Flavi U.S.P.
(Ointment of Yellow Mercuric Oxide)

Yellow Mercuric Oxide	1 Gm.
Liquid Petrolatum	1 Gm.
Hydrous Wool Fat	10 Gm.
Petrolatum	88 Gm.

Prepared by the method of incorporation.
Uses: A stimulant and antiseptic ointment used in the treatment of chronic conjunctivitis, corneal ulcers, granular lids, and scaly skin diseases. Also employed in the treatment of indolent ulcers, swollen glands, and old granulating surfaces.

Unguentum Hydrargyri Oxidi Rubri N.F.
(Ointment of Red Mercuric Oxide)

Red Mercuric Oxide	10 Gm.
Water	10 cc.
Hydrous Wool Fat	40 Gm.
Petrolatum	40 Gm.

Prepared by the method of incorporation.
Uses: A stimulant and antiseptic similar in action to ointment of yellow mercuric oxide.

Unguentum Iodi U.S.P.
(Iodine Ointment)

Iodine	4 Gm.
Potassium Iodide	4 Gm.
Glycerin	12 Gm.
Wool Fat	80 Gm.

Prepared by the method of incorporation.
Uses: A counter-irritant. The statement is made that the action of this ointment is too weak for most veterinary purposes.

Unguentum Iodi Denigrescens N.F.
(Stainless Iodine Ointment)

Iodine	50 Gm.
Paraffin	50 Gm.
Oleic Acid	200 Gm.
Petrolatum	700 Gm.

Prepared by the method of fusion.
Uses: An alterative.

Unguentum Iodoformi U.S.P.
(Iodoform Ointment)

Iodoform	10 Gm.
Wool Fat	20 Gm.
Petrolatum	70 Gm.

Prepared by the method of fusion.
Uses: An antiseptic dressing.

Unguentum Phenolis U.S.P.
(Ointment of Phenol)

Phenol	2 Gm.
Yellow Wax	5 Gm.
Petrolatum	93 Gm.

Prepared by the method of fusion.
Synonym: Ointment of Carbolic Acid.
Uses: An antiseptic dressing.

Unguentum Picis Pini U.S.P.
(Tar Ointment)

Pine Tar	50 Gm.
Yellow Wax	15 Gm.
Petrolatum	35 Gm.

Prepared by the method of fusion.
Uses: Of value in relieving itching, a local stimulant in chronic eczema and sometimes in moist eczema, erythema, psoriasis, pityriasis, pruritus, and lichen. Also destroys the parasites of mange and ringworm.

Unguentum Plumbi Iodidi N.F.
(Ointment of Lead Iodide)

Lead Iodide	10 Gm.
Benzoinated Lard	90 Gm.

Prepared by the method of incorporation.
Uses: An alterative, and to absorb glandular swellings.

Unguentum Sulphuris U.S.P.
(Sulphur Ointment)

Sublimed Sulphur	15 Gm.
Benzoinated Lard	85 Gm.

Prepared by the method of incorporation.
Uses: A local stimulant and parasiticide, effective in destroying acari which produce mange, grease, and scab.

Unguentum Veratrinae N.F.
(Veratrine Ointment)

Veratrine	4 Gm.
Expressed Oil of Almond	6 Gm.
Benzoinated Lard	90 Gm.

Prepared by the method of incorporation.
Uses: An anodyne and counter-irritant.

Unguentum Zinci Oxidi U.S.P.
(Ointment of Zinc Oxide)

Zinc Oxide	20 Gm.
Paraffin	15 Gm.
White Petrolatum	65 Gm.

Prepared by the method of fusion.
Synonym: Zinc Ointment.
Uses: A mildly antiseptic and astringent dressing, used in the treatment of eczema, erythema, and scratches.

The following is the list of the official cerates used in veterinary medicine:

Ceratum U.S.P.
(Cerate)

White Wax	300 Gm.
Benzoinated Lard	700 Gm.

Prepared by the method of fusion.
Synonym: Simple Cerate.
Uses: A protective dressing.

Ceratum Camphorae N.F.
(Camphor Cerate)

Camphor Liniment	100 Gm.
White Wax	350 Gm.
White Petrolatum	150 Gm.
Benzoinated Lard	400 Gm.

Prepared by the method of fusion.
Uses: Camphor acts as a stimulant, rubefacient, and local anodyne.

Ceratum Cantharidis U.S.P.
(Cantharides Cerate)

Cantharides, in very fine powder	350 Gm.
Glacial Acetic Acid	25 cc.
Oil of Turpentine	150 cc.
Yellow Wax	175 Gm.
Rosin	175 Gm.
Benzoinated Lard	200 Gm.

Prepared by macerating the cantharides with the glacial acetic acid and the oil of turpentine, adding the macerated cantharides to the melted base, heating the mixture on a water bath to a definite weight, then, without further application of heat to stir the cerate until it becomes firm.
Synonym: Blistering Cerate.
Uses: Rubefacient, vesicant, and counter-irritant.

Ceratum Plumbi Subacetatis N.F.
(Cerate of Lead Subacetate)

Solution of Lead Subacetate	20 Gm.
Wool Fat	20 Gm.
White Wax	20 Gm.
White Petrolatum	38 Gm.
Camphor	2 Gm.

Prepared by the method of fusion.
Synonym: Goulard's Cerate.
Uses: Indicated in the treatment of skin diseases, as weeping eczema and erythema.

Ceratum Rosinae U.S.P.
(Rosin Cerate)

Rosin	350 Gm.
Yellow Wax	150 Gm.
Lard	500 Gm.

Prepared by the method of fusion.
Synonym: Basilicon Ointment.
Uses: Local stimulant and antiseptic, an excellent preparation for burns, wounds, ulcers, and abraded surfaces.

Ceratum Resinae Compositum N.F.
(Compound Rosin Cerate)

Rosin	225 Gm.
Yellow Wax	225 Gm.
Prepared Suet	300 Gm.
Turpentine	115 Gm.
Linseed Oil	135 Gm.

Prepared by the method of fusion.
Synonym: Deshler's Salve.
Uses: Similar in action to Rosin Cerate.

Ointments and cerates constitute but two of the many classes of official pharmaceutical preparations which the pharmacist is fully qualified to prepare.

The College of Pharmacy of the City of New York, Columbia University, has had the privilege on two occasions during the past year of co-operating with the veterinary profession in exhibiting a display of the official ointment bases, ointments, and cerates used in veterinary medicine. The first exhibit was in connection with the May meeting of the Hudson Valley Section of the New York State Veterinary Society held in Bronxville, New York, and recently at the International Veterinary Congress which was held at the Waldorf-Astoria, New York City, during the week of August thirteenth.

New and Better Tuberculin Available

A new tuberculin, free from foreign protein, has been in use since last April in the testing of cattle for tuberculosis. The new product is materially superior to the tuberculin formerly available. It is made from a pure chemical which takes the place of meat broth. The product is even more reliable in revealing the presence of tuberculosis than the broth tuberculin, which for more than 40 years has been produced by practically the same method as was devised by Robert Koch, discoverer of the product. Dr. M. Dorset, of the Bureau of Animal Industry, says that enough of the new tuberculin is being produced to test more than 18,000,000 cattle annually.

The new tuberculin is prepared from cultures on a synthetic medium composed of various pure chemicals in the precise proportion required for maximum growth by the bacteria that cause tuberculosis. The most important single ingredient in this medium is a substance, asparagin—a pure crystalline amino acid—which furnishes the nitrogen the bacteria require without introducing any protein whatever. The synthetic medium will grow about four times as many bacteria as an equal quantity of broth culture.

Adhesions of the Bladder in a Dog

A two-year-old, female fox terrier was presented at the Kansas State College veterinary clinic during the summer of 1934. The history was that the bitch had been spayed. The dog had made a very good recovery, but later passed mucous and urine from the vagina while resting or in a sitting position.

The case was diagnosed as a possible abdominal fistula opening into the vagina, but upon opening the animal no fistula was found. Upon further examination a small tumor was found on the clitoris. The tumor was removed and the condition disappeared temporarily.

Several months later the bitch was again in the clinic with the same history as before. The animal was again operated upon, an opening similar to that for spaying being made. The only abnormality present was adhesions of the bladder to the ventral surface of the abdominal wall; thus allowing the urine to collect and pass out through the vagina while the animal was in a sitting position. The adhesions were broken down permitting the bladder to return to a normal position and upon urination the complete emptying of the bladder.

It was thought that the adhesions were the direct causes of this condition, brought about by the inability of the bladder to release the urine. The animal was observed daily. The condition was greatly improved when the animal was sent home.

Manhattan, Kans. L. W. Hibbs,
K. S. C. '35

What Every Person Should Know About Milk

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OF all things of life which affect human welfare none is more important than food. Food is to man what coal is to the furnace or gasoline to the automobile. Food furnishes man with internal heat, without which even overcoats would not keep him warm. Properly selected food provides mankind with the mental and physical energy which has been the mainspring of all civilization, it repairs the structural damage which the wear and tear of life inflict upon our bodies, and it helps make us resistant to disease. On the other hand, improperly selected food is responsible for a large proportion of human ills, from a simple stomachache to the shortening of life itself. In short, food is all-important in the human economy.

Of all of the kinds of food none is more important than milk, the principal food of infants and small children. Important questions about milk which every person should be able to answer are:

(1) Why is milk such an excellent food, and how much of it should be included in the diet?

(2) How can milk be safeguarded to prevent it from transmitting disease?

In the first place milk is the only food specifically prepared by nature for the young of mammals. Nearly everyone will immediately agree that a substance specifically prepared by nature for no other purpose than for food is most likely to contain the food elements needed to sustain life and justly deserves the title recently conferred upon it, namely, "the most nearly perfect food."

It is by no means sure that we know all of the attributes which the perfect food should have, but we can at least discuss some of them.

It will be obvious that one of the most important attributes which a food should possess is that it be a good source of energy, since every living thing needs a fresh supply of energy every day. Milk is such a food and, furthermore, is a cheap form of energy. The equivalent energy value in the form of certain other widely used foods is more expensive.

MILK is also a good muscle builder. It is rich in protein, which is required for muscle building. A child cannot grow and form strong muscles without protein. A full-grown adult cannot keep in health without it. As to the quantity of protein available in milk, Rose states: "A quart of milk yields more than an ounce of pure protein of the highest quality," that is, more than one-third of the total daily protein requirement of an adult.

Again, milk is a good tooth and bone builder, for it contains plenty of lime. Children particularly need lime, and the lime should be in a form which is easily utilized by the body. This is above all true of the lime in milk. One cup of milk contains as much lime as 3½ cups of carrots, 7 eggs, or 42 slices of bread.

Milk is a far more concentrated food from the standpoint of solids than most of us imagine. We think of milk as a liquid not much above the consistency of water; but it contains 13 per cent of solids by weight, which is more than is contained in onions, beets, carrots, squash, pineapple, turnips, oysters, cabbage, radishes, cauliflower, spinach, watermelon, pumpkin, tomatoes, asparagus, celery, lettuce or cucumbers. When we buy 1 pint or 1 pound of milk, therefore, we buy more actual dry solid food than when we buy 1 pound of any of the other above mentioned foods.

Milk is also an excellent source of fat. This, of course, is obviously in the form of

cream, which, with the milk sugar, is directly related to its fuel value.

Milk is an excellent source of vitamin A. Professor Sherman of Columbia University, one of the outstanding diet specialists of the world, has stated, as a result of his own extensive research, that "milk is the most important of all foods as a source of vitamin A." The same author has stated, in his book on "Chemistry of Food and Nutirtion": "Of the three vitamins A, B, and C, vitamin A is the factor of greatest practical importance to nutrition and health, because so many of our staple foods are poor in vitamin A, and because a dietary poor in this vitamin causes such widespread weakening of the body and increases its susceptibility to so many infectious diseases."

In the January 1932 issue of the *American Journal of Public Health*, the work of Professor Mellenby and his wife on vitamin A (*British Medical Journal*, Oct. 3, 1931) was discussed. As a result of their work with 550 pregnant women, these authors reported a significant reduction in morbidity following the administration of a preparation containing vitamins A and D; and the authors conclude, on the experimental evidence, that the vitamin-D fraction had little to do with the results.

AGAIN, Professor Mellenby and his wife have for some 5 years taken cod-liver oil (a rich source of vitamin A) daily and report that during this time they have been practically free from ordinary colds. This latter, as the editor of the Journal says, is of course not a controlled experiment; but the work on pregnant women was controlled, as 275 of the women received the vitamin A preparation and the remaining 275 did not. These statements are very interesting in view of the widespread feeling that vitamin A gives protection against infection.

Milk seems also to be a good source of vitamin G. This vitamin, as the result of the renowned work of the late Surg. Joseph Goldberger, of the Public Health Service, has been found to be valuable both in preventing and in curing pellagra, a dietary deficiency disease. Since milk contains vitamin G, the consumption of milk has been stressed by Goldberger and others as one important measure for combating pellagra.

Finally, milk is one of the most digestible of foods. It is easily and completely digested by most persons. Crumbine and Tobey state that the coefficient of digestibility of milk is from 97 to 98 per cent.

IT MAY be asked why milk was called the most nearly perfect food rather than "the perfect food." This is because, while it is the most nearly perfect food, it is not absolutely perfect, and what has been said would not be complete without reference to its shortcomings. Milk does not seem to be an entirely dependable source of the other vitamins, nor does it contain sufficient iron, and experiments have shown that infants and young animals restricted entirely to milk over considerable periods of time develop anemia.

For this reason, and also because variety in the diet stimulates the appetite, we should not try to live on milk alone. The diet of normal children should include a quart of milk daily, supplemented with a wise selection of other foods, among which should be included orange juice, cod-liver oil, and green vegetables. Normal adults may wisely include at least a pint of milk in their daily diet. Of course, abnormal adults or children should receive and follow competent medical advice.

It seems reasonable to believe that in the future public-health officials will not always grade milk on the basis of its cleanliness and safety alone, but will also grade it with reference to its nutritive value. Recently it has become quite apparent that the kind of feed a cow gets very much affects the nutritive value of the milk she gives. Therefore it may be anticipated that some time in the future grade A milk may be required to have been produced by cows which receive at least a standard balanced ration so that their milk may possess the maximum food value for human beings.

It seems a pity that milk can be such an excellent food and at the same time so dangerous if not properly safeguarded. But it is unfortunately true that milk is not only

a good food for human beings, but also a good food for certain types of disease organisms, such as those causing typhoid fever and diphtheria. Then, again, milk may sometimes, without our knowledge, come from sick cows. In such cases their milk may at the time of milking contain large numbers of the organisms of such diseases as septic sore throat, undulant fever, and tuberculosis.

Occasionally there occur milk-borne outbreaks of appalling magnitude. Only a few years ago a milk-borne outbreak in Montreal caused over 5,100 persons to be stricken with typhoid fever, and killed over 500 of them. Fortunately most disease outbreaks caused by unsafe milk are not nearly so serious as the Montreal outbreak, but the United States Public Health Service receives reports each year of from 30 to 50 outbreaks.

This fact is tremendously significant to all of us who drink milk—*and especially to all of us who have children.*

AMONG the diseases which may be transmitted through milk are tuberculosis, typhoid fever, scarlet fever, diphtheria, septic sore throat, and undulant fever. Let us confine ourselves for the moment to but three of them—tuberculosis, typhoid fever, and septic sore throat.

Suppose you were a dairyman. What would you do, short of pasteurization, to make sure that none of your customers would ever contract any of these diseases by drinking your milk?

Well, in the case of tuberculosis, almost the only thing you could do would be to have your cows tested for tuberculosis and kill those that showed they had it.

Suppose you did that. Suppose you had a herd of 50 splendid, pure-bred cattle, that you had them all tested, found 3 or 4 of them to be tuberculous, had these 3 or 4 slaughtered, and then continued with your business. Would you have protected your customers from contracting bovine tuberculosis? If I were one of your customers, could you give me real assurance that I would never regret having permitted my children to drink the milk from your dairy?

Certainly the four you had slaughtered would no longer be a menace. But suppose that a year later, when you came to test again, you found another cow to be tuberculous. Then you would face a very serious question. You would wonder how many months it had been tuberculous. You would be assailed by the disturbing thought that perhaps some innocent child had received through your milk supply the germs of tuberculosis, an infection which might not disclose itself until considerable time had elapsed, until, perhaps, the child and the parents had forgotten that you had ever been their dairyman.

Do not let anyone benumb your conscience into believing that this does not happen. It does happen, again and again, even at certified and grade A raw-milk dairies, and slaughtering the infected cows does not undo the damage they have already done.

NOW let us pass on to typhoid fever. If you were the owner of a raw-milk dairy, what would be the most effective thing you could do, short of pasteurization, to make sure that your milk supply would not carry typhoid fever to your customers?

Of course, if one of your milkers or other helpers contracted typhoid fever, you would at once have him quarantined or sent to a hospital; and if you were prompt and careful, there would probably be very little danger. But, unfortunately, that is not usually the way epidemics of typhoid fever are caused by milk. When milk becomes infected with typhoid fever it is usually not a sick person who is at fault, but, instead, a perfectly well individual, one who has had typhoid fever perhaps years ago and who possibly did not even know that what he had was typhoid fever. Nevertheless he has, as a result of this possibly unrecognized sickness, become what is known as a typhoid carrier. Such a man is, so far as we know, a perfectly well individual. He doesn't look sick and he doesn't feel sick. But, unfortunately, he still carries typhoid fever germs, either in his gall bladder or elsewhere, from which they are discharged with his feces or

urine, and thus accidentally now and then find their way to his hands, his clothing, and eventually to the dairy equipment and to the milk supply.

Of course, the typhoid-fever carirer is not aware of his condition. If he were, he would, in most cases, be honest enough to refuse to imperil the lives of his fellow beings by continuing to work at a dairy. But that is the dangerous thing about it. The typhoid carrier is usually ignorant of the fact that he is a menace, a carrier of disease and death.

KNOWING these facts, then, what would you do if you were the owner of a raw-milk dairy? Possibly you would do what is required by the Public Health Service milk ordinance for grade A raw-milk employes who have at any previous time had typhoid fever. You would have everyone at your dairy send samples of their feces and urine to the health department laboratory so that it could be determined whether they contained any typhoid organisms. Fortunately scientists have discovered an excellent method of recognizing typhoid fever germs.

Now suppose you took this precaution and the laboratory reported that so far as it could determine none of the specimens of feces or urine contained the germs of typhoid fever. Could you then rest assured that none of your employees is a typhoid-fever carrier, and that none of your customers would ever contract typhoid fever from the milk you sold them?

Unfortunately, the answer must be no. Many typhoid-fever carriers do not discharge the typhoid-fever germs every day, and on the day the specimens were collected and sent to the laboratory the carrier, if there had been one at your dairy, may or may not have been discharging the organisms. If he was discharging them, the chance that the laboratory would find them is excellent; but if he was not discharging them the laboratory could not, of course, find them.

There is, therefore, no way to make absolutely sure that raw milk will never contain the germs of typhoid fever; and if you knew as much about the danger as the health officer does, you, as a dairyman, would live constantly in fear lest some morning you awaken to find the newspapers pointing the finger of accusation at you and your milk supply.

We have now discussed 2 of the 3 diseases we intended to discuss.

HOW about the third—septic sore throat? What could you, if you were a producer of high-grade raw milk, do to prevent the transmission of this disease through your milk supply to your customers?

Frankly, I do not know. A milker may think he has an ordinary cold, when really it is septic sore throat. He may then infect the milk supply directly, or he may infect a cow's udder during the milking process, and the milk from that cow may later be simply teeming with the organisms of the disease.

Suppose we were to examine every milker's throat every day and every cow's udder every day. Even then we would not have done away with the danger, because by the time the report came back from the laboratory some of the milk would have been consumed. Of course, I need not tell you that a daily examination would be out of the question, if for no other reason than the expense entailed.

A septic sore throat outbreak can be very serious. In Portland, Ore., several years ago, a milker infected a cow's udder; and before the resulting epidemic was quelled, 487 persons sickened and 22 died.

To repeat, I do not know of any way in which you could guarantee that septic sore throat would not be spread through your raw-milk supply.

It seems impossible, then, to escape the conclusion that all milk should be either pasteurized or boiled to make it safe.

Should we rely upon boiling? That is what is done in many parts of Europe and South America, and, as a result, they have in those places practically no milk-borne disease. But with these people boiling milk is a matter of a daily habit. In most of the areas in question, the housewife does not

have ice, and milk is boiled to keep it from souring.

IN THIS country we have to deal with two factors: First, that most families do have ice or electric refrigerators and can keep milk sweet; and second, that many people do not like the taste of boiled milk.

If health officers simply said to all of the people, "Boil your milk," they could not depend upon a sufficient number doing it to prevent epidemics. Again, the adults and children who now drink raw milk because they like its flavor would not drink so much milk if it had to be boiled, and we must, by all means, encourage people to drink enough milk. It is just as important to do this as it is to make milk safe.

There is, then, only one other thing we can do (short of putting chemicals into the milk, and nobody wants to do that), and that is to pasteurize the milk. That is why most health authorities today feel that *all* milk should be pasteurized. The most common method of pasteurizing milk commercially is to heat it to 142° F. and hold it at that temperature for 30 minutes. This treatment kills or renders harmless all disease organisms which may be transmitted through milk. Higher temperatures for shorter periods are also effective.

YOU need not be worried about the effect of heating milk upon its food value. The vast majority of health officers and physicians today believe that pasteurizing milk has no significant effect upon its food value, especially when it is remembered that all children should receive a supplementary diet in addition to milk. Vitamin C is affected by heat, but this is not significant, since the amount of this vitamin present even in raw milk is frequently insufficient, and it is therefore necessary to feed children orange or tomato juice or some other high-bearing source of vitamin C, regardless of whether the milk they drink is raw or pasteurized. Therefore, since the child will get all the vitamin C it needs anyway, why take a chance on disease by insisting upon giving it raw milk?

Several years ago the Public Health Service conducted an intensive study of about 3,700 children to determine whether those who drank heated milk actually throve less well than those who drank raw milk. The results of the studies showed that the average weight of the children receiving raw milk was 33.2 pounds, whereas the average weight of the children receiving heated milk was 33.6 pounds; also the average height of the children receiving raw milk as 37.4 inches, whereas the average height of the children receiving heated milk was 37.5 inches. Furthermore, from the parents' reports it was found that the children who drank raw milk suffered with communicable diseases more frequently than did the children who drank heated milk only. The final conclusion of the study was that, taking into account the average supplementary American child diet, children who are fed pasteurized or other heated milk thrive as well as children who are fed raw milk, and contract certain communicable diseases less frequently.

"But," you may say, "many people do not like the flavor of pasteurized milk, and I am one of them."

That may be quite true; but it is true only when a low grade, unclean milk is used for pasteurization or when a high grade milk is improperly pasteurized. Pasteurization will not remove the bad flavor from bad milk, and even good milk can be damaged by pasteurizing it improperly. But if high grade milk is properly pasteurized, there is no change in the flavor.

OF COURSE we should not rely upon pasteurization as a cure-all and neglect all precautions at the farm, even if the flavor problem did not exist. The pasteurization process is operated by human beings and therefore is not entirely foolproof, though it is nearly so. We should firmly insist that the milk we drink be not only properly pasteurized but also carefully produced, so that we will have the maximum practicable protection all along the line from the cow to the consumer.—Condensed from *Public Health Reports*, Dec. 14, 1934.

Drugs Used in Veterinary Medicine

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III. TANNIC ACID—Nature's Astringent

History.—If one were to make a survey to determine which of the medicinal substances in use today occurs most abundantly in nature, there is no doubt that tannic acid or tannin, as it is otherwise known, would be found most universal. On the basis of the earliest written records, we must assume that this substance, or plant parts containing it, had wide use. Primitive artists depicted the oak tree and the insect (which will be described below) in their simple style. Pliny cites the first instance in which a chemical reaction disclosed the presence of an iron salt, using an infusion containing tannin as the reagent.

Both logwood and nutgall have been used since ancient times not only for their medicinal properties but also in tanning and dyeing processes. Their importance in commerce reached a climax in the early days of the sixteenth century when, in China, galls were worth "their weight in gold."

In South American countries certain astringents such as rhatany have always had wide use. In our own country, the American Indians are known to have employed the sumach, the witch hazel and the blackberry in treating piles, ulcers and certain skin diseases by means of cataplasmic preparations.

Source.—Tannic acid occurs in practically any part of the plant, but especially in the leaves, bark and certain exudations. Its function in the economy of the plant is not altogether understood. There is a relationship between its concentration and the occurrence of injuries. Such is the case with nutgall, our most important commercial source of this drug. Nutgall consists of an excrescence which develops on the twigs of certain species of Asiatic oaks following an injury due to egg-laying by the female gallfly, *Cynips tinctoria.* Study of the tumorous growth indicates that it is formed as a result of the increased enzyme activity, due to the presence of the larva, whereby extra amounts of growth-promoting constituents are available to the plant cells. This results in hypertrophy of the tissues.

Upon reaching adulthood, the insect chews its way out of the excrescence leaving as evidence of its escape a single aperture on one side of the gall. The galls are collected for the drug market previous to the exit of the insects, since at this stage they have the greatest weight and therefore a greater yield of tannin. This can be demonstrated by the absence of the tubular aperture and by the fact that the better galls sink in water—a test which is used to determine their quality. In a good lot of such material, not more than 5% are "floaters."

The nutgall is, then, the result of an attempt on the part of the plant to protect itself against the insect injury, and it appears that in this process the concentration of tannic acid is greatly increased. Nutgalls contain from 50% to 80% of tannic acid, and for this reason are our greatest source of this substance. The galls themselves consist of a hard, spherical body with a tuberculate surface. They are usually ¾ inch or less in diameter, and have a grayish-brown to a bluish-green surface color. The lighter the color, the more inferior the quality of the gall. The present supply comes from the Mediterranean basin, Asia Minor and Persia. The best galls are known to come from Turkey and are known as "Aleppo galls."

There are other sources of tannic acid in which it exists in a somewhat modified form and in much less quantity than in nutgall. These include logwood (Haematoxylon), rhatany (Krameria), white oak bark (Quercus), blackberry bark, bayberry bark, sumach berries, wild geranium, witch hazel, chestnut leaves, rose petals, tea leaves, and

such exudations as kino, gambir (pale catechu), catechu, and eucalyptus gum.

Preparations.—The preparations of nutgall are the powder, the tincture, and ointment—the two latter being 20 per cent tannic acid. The official tannic acid is obtained by powdering the galls and exposing the product to a damp atmosphere for twenty-four hours. Ether is then added and the pasty mass is allowed to stand for six more hours. This wet mixture is expressed several times and the collected liquids are allowed to evaporate spontaneously; the tannic acid remaining behind in the form of glistening scales. The official preparations of the acid are the ointment (20%), glycerite (20%), styptic collodion (16%) and troches (1 grain each). Acetyltannic acid or tannigen, is made by heating tannic acid and treating it with acetic acid. Albumin tannate or albutannin (Tannalbin) is obtained from combinations of egg albumin with the acid. Tannoform is a compound of the acid with formaldehyde. Tannopin is a combination of acid and methenamine. Protan is a caseintannin compound, and tannacol is a gelatin-tannate compound.

Properties.—Tannic acid, known also as gallo-tannic acid or digallic acid, has the formula $HC_{14}H_9O_9$. It consists of a yellowish-white amorphous powder, spongy lumps or glistening scales which, on exposure to air and light turn a light brown color. It is usually odorless or may have a slight characteristic odor, and has a strongly astringent taste. It is very soluble in water, alcohol and acetone particularly if these are heated; and is readily soluble in warm glycerine. It is almost insoluble in ether, chloroform and benzine. When tannic acid is hydrolized or when substances containing it ferment, it is changed to gallic acid, $HC_7H_5O_5$. This is present also in nutgall to the extent of 2 to 3%. It was at one time considered effective, but is so feeble in its action that it has become almost obsolete. It is the source of pyrogallol, which is obtained by heating the acid; and bismuth subgallate or dermatol.

Tannic acid is incompatible with many substances including alkaloids, gelatin, albumin, mineral acids, lime water, amyl and ethyl nitrite, iodine and iodotorm, arsenic, antimony, chromium, copper, iron, lead, mercury and silver; antipyrine, starch, chlorates, permanganates and other oxidizers. The basis of making some inks depends upon this incompatibility with certain iron salts.

Action.—The action of tannic acid is based upon its ability to precipitate proteins chemically, thus acting as a true astringent. This principle is employed commercially in "tanning" leather by means of oak or logwood. The final product consists of hard, dry tissue which retains much of its flexibility and resists putrefaction. On the living body, the effect on unbroken skin is not evident, but in the case of wounds or abraded surfaces it causes a shrinkage of the tissues and checks secretions though this action is accompanied by some degree of irritation. The coagulum thus formed is quite dense and resists putrefaction, at the same time serving as a protective film and incidentally exerting a pressure on the underlying layers of cells. This pressure interferes partially with sensation (reducing pain) and diminishing the local blood supply, thus relieving congestion. In case of hemorrhage, tannic acid acts as a hemostatic by coagulating the effused blood, by clotting the blood within the vessels or capillaries, and by constricting the blood vessels directly as a result of the effect on the proteins contained in their walls. In the mouth, it causes an unpleasant "puckering" effect which is accompanied by a partial loss of the sense of taste. There is marked astringency in the pharyngeal region as a result of which some animals will experience nausea and vomiting on attempt to swallow it.

On the mucous membranes, in general, it acts by diminishing glandular secretion, cutting off an over-supply and often shrinking, drying and rendering it more firm and increasing tonicity where this has been deficient. In the digestive tract, such action results in constipation, the feces become hard and dry and there is a smaller amount evacuated. The film coating the mucous layer acts as a protective to the bowel, lessening irri-

tability and therefore peristalsis.

When the drug is administered during digestion, tannic acid precipitates the proteins of the food with which it comes in contact but this is not permanent since the peptones formed in the stomach do not combine with it. It is therefore left to exert its influence on the walls of the stomach and intestine instead. When given in moderate amounts, it affects the flora (yeasts and bacteria) of the intestine similarly, reducing the chances for their reproduction by the direct effect upon them or by arresting mucous secretion. In the end, fermentation and putrefaction within the intestine may be retarded. In greater amounts, the drug is apt to cause gastro-intestinal irritation which is often accompanied by diarrhea. For this reason it is manifest that the drug may increase the very thing which it was intended to alleviate. Because of this disadvantage, attempts have been made to avoid unfavorable gastric effects by using combined forms of tannic acid in place of the pure acid. These compounds are, for the most part, insoluble in dilute acids but soluble in dilute alkalies, properties which are intended to meet conditions existing in the normal alimentary tract. This object has not been attained thus far since the intestine frequently becomes slightly acid and therefore these substances are often unavailable. It is of greater practical advantage to find tannic acid compounds which are slowly soluble in the digestive fluids regardless of the reaction occurring there at the moment. Of the compounds belonging to this group, acetyltannic acid is the least soluble, albumin tannate is slowly soluble, and protan is most soluble. The latter would therefore expend its action mainly on the upper portion of the intestine; and the other two compounds should theoretically act more efficiently on the lower portions but clinical findings indicate only slight differences at the various levels.

Tannic acid does not reach the tissues in its original form but is completely oxidized. Some of it is changed to gallic acid and finally to sodium gallate or tannate, so that by the time it is absorbed the astringent properties are entirely lost. It is obvious, therefore, that tannic acid can have no effect in the case of distal bleeding, e. g. in the kidney. Small traces of the acid are occasionally found in the feces and the urine, and sometimes pyrogallol is formed from the gallic acid in the urine. The properties of the other crude drugs which contain variable forms of tannic acid are similar to that of tannic acid, but the action may be modified, due to the presence of other constituents such as gums or resins which affect the solubility of the tannin.

Therapeutics.—Tannic acid is used for its external, local effects in the form of a solution (wash or spray), ointment (nutgall ointment is also popular), glycerite, collodion or compound powder. It has great value in relieving local inflammatory conditions resulting from wounds, ulcers, moist eczema, fissured or sore teats, and frost bite. It is also used as a simple astringent for hardening the skin. It is also employed to reduce or arrest bleeding when the injury is superficial and involves only small blood vessels. Recently, it has been found valuable in the treatment of burns when combined with an antiseptic, in which case it causes a "tanning" or "leatherization" of the surfaces similar to the tanning of leather. In this type of therapy, usually a 2½% solution is sprayed on the affected areas at short intervals until a pellicle or coagulum is formed. This film has a soothing effect due to the artificial skin which covers the exposed nerve-endings. It also lessens absorption of the otherwise soluble toxins that occur on the raw surfaces; and the healing process is accelerated. It has wide use on mucous membranes of the mouth and throat for inflamed gums, ulcerative stomatitis, pharyngitis, laryngitis, etc.

In the alimentary tract tannic acid is used as an enema for dysentery and as an ascaricide; to reduce gastro-intestinal surface hemorrhage, and in the relief of diarrhea (provided the inciting cause is known and first treated). In the latter case, especially with young animals, kino, gambir, catechu (or their tinctures) as well as such compounds as tannigen or tannalbin are found more useful because of their slow solubility, less irritant properties, and prolonged ef-

fects. It is also useful, when combined with opium or hyoscyamus, in the treatment of hemorrhoids, rectal fissures or ulcers, or prolapsi ani. The glycerite has special application as an injection in otorrhea in dogs and in chronic vaginitis or leucorrhea.

In poisoning due to alkaloids (such as strychnine) or metallic compounds (such as tartar emetic), tannic acid is an excellent temporary expedient since it renders the toxic agent insoluble. It must be remembered, however, that the use of this antidote must be followed by other steps in the treatment (such as stomach pump or cathartics) since the insoluble tannate thus formed will gradually redissolve in the gastro-intestinal fluids.

DOSE TABLE

Drug or Preparation	Animal	Apothecary	Metric
Tannic Acid	H	ʒss-iv	2. –15.
	C	ʒss-vi	2. –24.
	S	ʒss-i	2. – 4.
	D	gr. i-xv	0.06– 1.
	Fowl	gr. 1/6-¾	0.01– .05
Tannigen & Tannalbin	H	ʒi-iv	4. –15.
	C	ʒi-iv	4. –15.
	S	gr. xx-xl	1.3 – 2.6
	D	gr. x-xx	0.65– 1.3
Kino, Gambir, Catechu	H	ʒss-i	15 –30
	C	ʒi-ii	30 –60
	S	ʒi-ii	4. – 8.
	D	gr. v-xxx	0.3 – 2.
Tincture of Kino, Gambir, Catechu	H	ʒi-ii	30 –60
	C	ʒi-ii	30 –60
	S	ʒss-i	15 –30
	D	z ss-ii	2. – 8.

(The above tinctures are often combined with bismuth subnitrate and paregoric or tincture of opium in treating diarrhea.)

The doses of tannopin and tannoform are about twice that of tannic acid.

The dose of protan is similar to that of tannigen.

Amertan is a 5% tannic acid jelly combined with a germicidal organic mercury salt. It is indicated for abrasions, lacerations and especially in the treatment of severe burns.

Toxicology.—Tannic acid is not considered poisonous, though large doses may irritate the mucous lining of the gastro-intestinal tract sufficiently to produce nausea, vomiting and diarrhea. Rare instances of an idiosyncrasy have been reported. When an excess dose has been given or tannin-containing substances are suspected of being the cause of alimentary distress, proteinaceous substances such as milk or eggs should be administered freely. The acid, or crude drugs containing it, must never be injected intravenously or hypodermically since there is always the danger of emboli formation by such means.

Although it is not the most active of the astringent substances used in medicine, this drug is considered by many to be superior to the more irritant and often poisonous metallic astringents which, for the most part, cannot be employed internally as can nature's own product—tannin.

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Pyloric Atresia

December 12, 1934, a male, 10-month-old German shepherd, with a history of increased salivation and frequent emesis especially after feeding, was sent to the Kansas State College veterinary hospital from Russell, Kansas, by a practitioner. The animal was emaciated due to inability to retain food.

The temperature, pulse, respiration, conjunctiva and other visible mucous membranes were normal. A high enema was given but nothing was found except a small amount of hardened fecal material in the rectum. A microscopic fecal examination proved negative for parasites. No pathological condition was seen upon examination with the fluoroscope. Two ounces of 5% bismuth in oil was given as a drench; the fluoroscope being again used after the first ounce of the emulsion was given and during the administration of the second ounce. The bismuth could be seen, easily, as it went down the esophagus and into the stomach; again no abnormal condition was revealed.

An exploratory laporotomy was decided upon. The animal was put on the table and the operative area cleaned and shaved. Tincture of iodine was applied to the area and the dog anesthetized with ether. An incision about four inches long was made in the linea alba and the stomach inspected and palpated. The walls of the pyloric portion were greatly thickened, as was also the intestine for a distance of three inches

along the duodenum. The remainder of the stomach appeared to be normal. The incision was sutured and a boric acid and iodoform pack applied. The dog was kept in the hospital a few days. As the only treatment was surgical anastomosis of the intestine to the stomach and since the owner did not wish to be "bothered," euthanasia was advised.

Manhattan, Kans. J. C. Brock, K. S. C., '35.

Tonsilectomy in a Dog

November 10, 1934, a purebred, racing greyhound was presented at the Kansas State College veterinary hospital. The dog showed symptoms of mild anorexia, depression, and had a slight intermittent cough which could be induced by light pressure in the region of the throat. A fecal examination revealed the presence of tapeworms. The owner suggested that inflamed tonsils was the cause of the cough, which had persisted for some time.

The animal was treated for tapeworms by giving one-half grain of arecoline hydrobromide, and a high enema after the arecoline hydrobromide had run its course. The tonsils and region of the pharynx were painted with tincture of metaphen, and the dog was discharged from the clinic.

FIVE days later the animal was returned to the hospital. The general condition had markedly improved, but the cough was quite pronounced. The throat and tonsils were again swabbed with tincture of metaphen, and the dog sent home. The owner again stated his belief that the tonsils were the underlying cause of the condition, and seemed rather convinced that the only beneficial treatment would be their removal. Examination of the tonsils showed them to be slightly enlarged, but exhibiting very little pathological change.

NOVEMBER 21, the dog was presented once more at the hospital. The cough was still present, the tonsils were slightly swollen. This time, the owner insisted upon a tonsilectomy, which was performed.

Operative Technique

The dog was placed on the operating table in lateral recumbency. A small area where the saphenous vein passes over the lateral surface of the hind limb was shaved, cleaned, and painted with tincture of iodine.

Nembutal was injected into the saphenous vein. During the injection, the vain seemed to be plugged up after about 2cc had been injected, and some of the solution escaped into the surrounding tissues. The remainder of the nembutal was injected into the vein on the opposite limb and the anesthesia completed with ether.

The dog was then placed in an upright position. The mouth was held open with the aid of Gray's speculum, and the tongue kept out of the operative region by attaching a Collin's forcep to its tip and pulling it to the opposite side from the tonsil to be removed. A pair of forceps passed through the loop of the tonsilectomy snare was used to grasp the tonsil, and then the loop of the snare was passed around the base of the tonsil. With careful upward traction and gradual tightening of the snare, the tonsil was removed with a minimum of hemorrhage. The other tonsil was removed in the same manner.

No after treatment was necessary. Soft foods and broth were fed until healing was complete. The dog was sent home the day following the operation; the owner being instructed as to the feeding.

NOVEMBER 30, the dog was brought to the hospital with a slight slough of the skin on the leg at the site of the first-attempted intravenous injection. The cough had disappeared completely, and the dog was bright and alert. The sloughed area was treated by applying tincture of metaphen. The owner was advised to apply mercurochrome to the sloughed area daily.

DECEMBER 18, the owner reported that the animal had recovered from the cough, and the sloughed area was completely healed.

Manhattan, Kans. E. W. Frahm, K. S. C. '35.

When A Veterinarian Is Entitled to Recover for Services

By LEO T. PARKER,
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DURING the past few months the higher courts in different localities have rendered several unusually important decisions regarding payment for services of veterinarians. Particularly for the reason that veterinarians are continually confronted with intricate collection problems, the purpose of this article is to review these recent leading cases involving various and interesting phases of the law on the subject.

First, it is important to know that payment for veterinarians' services is an expressed and absolute obligation. Moreover, cash payment is implied if no time for payment is stipulated. In other words, although no agreement is made regarding the time for payment, a veterinarian may legally demand cash payment and the courts always will uphold a suit based upon this demand. (185 F. 373.)

Therefore, if the veterinarian fulfills his expressed and implied obligations, the owner of the animal has no other alternative than to pay for the services on a cash basis, or make payment in strict accordance with the terms of a special agreement under which the veterinarian has agreed to accept time payment.

FREQUENTLY litigation results where the debtor and veterinarian disagree over the meaning of a statement regarding payment. It is important to know that in controversies of this nature the courts always endeavor to render decisions in accordance with the original intentions of the parties, or that payment must be made upon demand.

For example, in Harrison v. Atlee, 23 Pa. Sup. Ct. 241, it was disclosed that two persons entered into an agreement by which the creditor agreed "to carry the account for you charging interest at 6 per cent."

Several months after this agreement was made the creditor demanded payment. The customer refused to comply with the demand on the contention that he was entitled to withhold payment so long as he paid six per cent on the amount due.

However, the court held the debtor bound to make the payment *immediately* upon demand and explained that in contracts of this nature, where the time of payment is not specified, the creditor may demand and recover payment within a "reasonable" time after the agreement is made.

Services Under Contract

Obviously, the veterinarian impliedly agrees to render reasonably prompt and efficient service, and to perform services with due care to benefit the animal being treated. Failure to do so not only may bar the veterinarian from collecting for his services but he may be liable in damages for losses resulting from his negligence.

It is well established that the instant a veterinarian breaches an expressed or implied obligation, as by failure to render efficient service or neglects to treat the animal at an agreed time, the customer is privileged to rescind the contract, and he has choice of doing either of these three things: (1) He may refuse to accept the future services and sue the veterinarian for damages equal to the financial loss resulting from the breach; or (2) he may file suit and compel the veterinarian to fulfill the terms of the expressed or implied agreement; or (3) he may notify the veterinarian of the breach and later enter into a supplementary agreement to accept services under terms of the same or different contract.

Of course, this law relates to veterinarians who are employed under contract. Such contracts may be expressed, as where a veterinarian agrees to render services over a stipulated period for a specified payment

per year, month, week or day. Also, a contract may be implied, as where a veterinarian comes on call and promises to return at a stated time, or where he agrees to accept an animal for treatment and continue the treatments necessary to produce beneficial results which may have been expected of other veterinarians having average prudence, experience and ability.

Th "implied" duty of a veterinarian is to exercise ordinary care to safeguard animals left or placed under his care. The "expressed" obligations are those assumed by the veterinarian in writing or verbally.

ANOTHER important point of the law is that a veterinarian may retain animals, which are left in his control, if payment is refused, but under no circumstances may he retain in his possession an animal to secure payment for services rendered on another animal. In the former case, the veterinarian has a lien on the animal, but in the latter instance his lien is forfeited when he voluntarily gives up possession of the animal on which services have been rendered.

Accord and Satisfaction

Probably the most common source of litigation on payment involves "Accord and Satisfaction." "Accord" is the legal expression used when the debtor offers to settle an old account under a new agreement. Acceptance of the offer by the creditor is "Satisfaction."

Numerous cases are on record disclosing that a veterinarian may file suit and collect the balance due on an *undisputed* account, although he accepts cash or a check with a notification from the customer that the lesser amount is being paid in full settlement.

THE same law is effective with respect to a receipt given by mistake for "full" payment, when a balance on the account remains due. In other words, the veterinarian may file suit and collect the balance due upon proof that the account was *not* disputed.

However, if the account is disputed a quite different situation arises. Acceptance of *any* payment by a veterinarian, who knows that the debtor intends that it shall be *full* payment on a disputed account, actually is legal full payment.

For instance, in Alcorn v. Arthur, 20 S. W. (2nd) 276, it was disclosed that a debtor objected to the amount of a bill and refused to pay it. Subsequently he sent his check to the veterinarian for a small part of the amount he owed and wrote on the check the notification: "For account in full."

The veterinarian accepted and cashed the check and later filed suit for the balance due contending that he did not see the written notification on the check. Notwithstanding this contention the higher court held the debtor *not* liable for payment on the balance due, and said:

"Ordinarily, this man would be charged with notice of what was in this check. . . . . He had his election, to accept it as drawn, or to return it; he elected to keep it and cash it. When he did that, the minds of the parties met; that was an accord and satisfaction of his claim."

Therefore, it is important to know that retention by a veterinarian of a check received from a customer never is legal settlement of a disputed account, particularly if the testimony shows that the veterinarian notified the customer that he would not accept the check in full payment and did not cash the check.

For example, in Craft vs. Standard, 123 So. 271, where this point of law was involved the court said:

"The mere retention of an uncertified personal check purporting to be issued in full satisfaction of a disputed demand, where notice is given on its receipt that it will not be received in full satisfaction of the demand, in the absence of the subsequent endorsement and collection, does not, as a matter of law, constitute an acceptance of the check as accord and satisfaction."

Deposit Checks Promptly

A veterinarian who fails to present promptly a check given in payment for an account may find himself a legal creditor of the payor of the check if the latter becomes bankrupt. Also, if the bank, on which the check is drawn, becomes insolvent before

presentation of the check the veterinarian may suffer financial loss.

Various courts have held that if the recipient of a check resides in the city in which the bank is located, he should present the check to the bank within twenty-four hours to forty-eight hours after he receives it. Should he fail to do so the maker of the check is not obligated to repay the amount if the bank closes its doors before payment is received.

Another important rule of the law is that the time for presentment of a check is *not* changed by reason of clearing house rules. Therefore, if a veterinarian presents a check for payment at the bank with which he transacts business *instead* of the bank on which the check is drawn, he does so *at his own risk* and the time for presentation at the latter bank is *not* extended. (8 C. J. 753.)

Partnership Obligations

It is well settled law that if a transaction is in connection with and within the scope of a partnership business, all partners are jointly liable for payment of the obligations. Moreover, if only one of the partners is solvent, this one is liable for *full* payment of the partnership debts, although he is a silent partner and generally unknown as being a member of the partnership.

For illustration, in Hartz v. Page, 20 S. W. (2nd) 701, it was disclosed that a partnership was formed for buying and selling cattle. One of the partners—Page, was silent. Later litigation arose over payment of a veterinarian's bill for services.

It was contended that Page could not be held personally liable because the charge on the veterinarian's books did not include Page's name. However, it is interesting to observe that the higher court held Page liable, saying:

"Even though the medicines and medical services of Dr. Sale were not charged on the doctor's books against Page, yet, if they were furnished for the partnership cattle, Page is liable therefor, if, in fact, he was a partner."

Outlawed Debts

Every veterinarian knows that debts may be "outlawed," and the debtor relieved from paying the account if the creditor permits the debtor to delay making payment for a period of time specified by the laws of the state in which the services were rendered. However, not all are familiar with the fact that certain acts or statements on the part of the debtor will renew the debt, although it is barred by the statute of the state.

For instance, a debtor automatically renews the outlawed debt by making any payment on the account, or by making a new promise to pay the debt. So held a high court in the late case of C. H. Hyer & Sons v. Morrow, 16 S. W. (2d) 938.

The facts of this case are that an account was in dispute for so long a period that it became barred by the state statute. Several months after the debt became "outlawed" the creditor wrote to the debtor demanding payment. The customer wrote, as follows:

"Today I do not have the money. Tho believe I will shortly. . . . For 25 years I have always paid *and I'll make it a point to take care of your account just at earliest day*, and I thank you. Very truly, J. N. Morrow."

The court held that this kind of letter renews an outlawed debt, stating the following important law:

"It is clear, we think, that the letter embodies a *distinct promise* to pay the debt evidenced by the open account. . . . In order to remove the bar of limitation from a barred indebtedness, there must be a new promise to pay the same, evidenced by writing on the part of the debtor. The liability of the debtor, in such a case, depends, *not* upon the old obligation, *but upon the new promise*. This new promise need not be expressed in the writing, *but may be implied from what is written.*"

Veterinarian Entitled to Practice

Frequently, debtors refuse to pay veterinarians on the grounds that the veterinarian either is practicing unlawfully, or has no license or permit, or violated some other law while performing the services.

The law is well established that where the successful prosecution of a calling requires a certain degree of professional knowledge and skill, and the lack of which in the prac-

aitioner will result in material damage to the one who employs him, it is the legitimate exercise of police power to prohibit anyone from engaging in the profession who has not previously been examined by a lawfully constituted authority and received a certificate in testimony of his qualifications to practice the profession.

Various courts have held that a "license" is permission conferred by proper authority to pursue a certain trade, profession, or calling, and it is distinguishable from a permit in that the latter relates to permission to do a particular act.

Therefore, where an old law permits veterinarians to practice without taking an examination, such law gives the practicing veterinarians the legal status of having taken an examination and received a certificate, irrespective of new and later laws.

For example, in Staniforth v. State, 170 N. E. 578, it was shown that in 1894 a state law was passed which provides that "all persons who now, or shall hereafter, practice veterinary medicine and surgery in the state of Ohio, and have *not* been engaged in such practice for at least three years prior to the passage of this act, in the state of Ohio, shall be examined as to their qualifications by a state board of veterinary examiners, to be appointed as hereinafter provided."

A short time ago another state law was passed which provides that "no person shall practice veterinary medicine and surgery in this state without having first obtained from the state board of veterinary examiners a certificate entitling him to engage in such practice."

A veterinarian, who had been practicing for forty years, was convicted of violating the last mentioned law. He appealed to the higher court contending that in view of the 1894 law he was entitled to practice without obtaining a certificate. In upholding this contention, the court said:

"It is to be taken as undisputed from the record in this case that the accused was engaged in such practice for some forty years preceding his arrest, and also that he had been engaged in said practice for at least three years prior to the passage of the law . . . By said law he was given a legal status to the same extent as if he had taken an examination before the state board of veterinary examiners, had successfully passed said examination, and had obtained a certificate to that effect."

Anthrax in a Dog

A severe outbreak of anthrax occurred last August on a farm near Lesterville, South Dakota, which resulted in the sudden death of 13 of 22 Holstein cows. Four days later, the owner noted that his three-year-old male fox terrier was ill. Inquiry revealed that there had been anorexia for two days. Cachexia and mental depression were marked, the temperature was 105.6° F. There was acute pharyngitis, and congested mucous membranes. Palpation revealed marked hypertrophy of all cervical glands. The digestive tract was apparently normal.

A tentative diagnosis of anthrax was made because of the history and symptoms.

Fifty cubic centimeters of anti-anthrax serum was injected subcutaneously in the neck region; no other treatment. Two days later the temperature was 102.°F., the pharyngitis had subsided, the swelling of the throat had disappeared, the appetite had returned to normal. Recovery was complete.

THE few cases of anthrax that do occur in dogs are seldom diagnosed, probably due to the fact that in rural districts the economic value of dogs is not highly rated, hence they are seldom brought to the veterinarian's attention when ailing.

Dogs possess a rather high degree of resistance to anthrax organisms. Hutyra and Marek mention that eating fresh anthrax infested meat will not result in infection in dogs, but that eating meat which has been exposed longer, and therefore has a higher spore content, may result in infection.

Another reason has been offered which may explain the increased resistance of dogs to anthrax bacilli. It is that the hydrochloric acid in the gastric jujice of dogs is of a concentration more than sufficient to destroy the vegetative forms when ingested.

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Motile Foes of Sanitation*

By ORVILLE E. McKIM,
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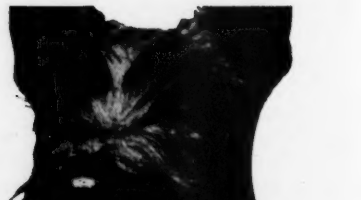

RECENTLY there has been broadcast by press, radio and platform addresses, a very enthusiastic campaign urging the expenditure of tremendous sums for an air corps for national defense, and for use as attacking forces in the event of war. Startling pictures were painted of the dire consequences if an enemy air force were to attack us without a suitable defense in the air. It required the sagacious observation of that eminent veteran and field general, Maj. Gen. James Guthrie Harbord, to bring about a more conservative view of the situation. General Harbord stated that "wars always have been and always will be fought in the dirt." The lowly doughboy would, in the final analysis, be the one upon whom we must rely to "hold the line," and that an air force as such, although spectacular and brilliant, cannot take and hold ground.

WE CAN apply this observation to our campaign in our sanitation wars and fight them out "in the dirt." Dirt is not the only enemy to sanitation; the projector, carrier and provider of infection laden dirt should receive particular attention. In our zealous endeavors to destroy disease producing organisms we neglect, in many instances, to pursue further measures of protection through the extermination of carriers and distributors of such organisms.

It is utterly futile to attempt thorough disinfection of contaminated quarters such as stables, kennels, coops and pens, unless we prevent their reinfection through the medium of motile foes to sanitation. There may be included in this group: flies, rats, English sparrows, pigeons and other birds, ants, roaches, fleas, mosquitoes, etc.

DISEASES such as hog cholera, foot and mouth disease and others of a highly virulent nature, are often spread by these carriers. Our efforts are more or less fruitless, if, after we have cleaned the walls and floors of quarters, we do not go further and prevent reinfection by hosts that carry contamination in through cracks, holes and other points of entrance.

Rats and English sparrows are undoubtedly the two greatest problems in that they are highly intelligent and courageous as well as of nomadic nature. They go where the best food supply is available and are persistent and audacious in their depredations. The insects such as flies and ants are much less dangerous if the contamination is not brought to the premises by the rats and sparrows that travel great distances. The only preventive methods are those of exterminating nature.

ENGLISH sparrows are best exterminated through the use of poisoned grains and other food. There are, on the market, very satisfactory mixtures of grain impregnated with thalium sulphate which will poison sparrows. There need be no fear of poisoning useful and songbirds, as only English sparrows have the audacity to fly close to places where constant activity prevails. There is also a tendency for other birds to give English sparrows a wide berth where feeding places are involved. The constant supply of poisoned grain left available to these sparrows greatly diminishes their

*Presented at the 51st Annual Meeting of the Massachusetts Veterinary Medical Association.

number. The writer has been poisoning them for a long time, and has not in any way affected other birds that we welcome as friends. Quite to the contrary, a notable increase of these feathered friends in the vicinity has supervened upon an extermination of the sparrows.

RATS must be attacked in a much different way, inasmuch as their suspicions are quickly aroused. Traps have not been successful to any considerable extent, so here again we must resort to poison. It is best to use a given poison for only a week at a time. The safest poison of all is Peruvian squill, which is marketed under several trade names. A squill preparation, "Ratopax," marketed by the Biocerta Corp., New York, is one of these. This preparation will not kill any meat-eating animals but rats and mice. The reason being that rats apparently cannot vomit. The first symptom produced is that of acute nausea, which results in it being expelled by fowl and other animals before toxic effects are produced. Another good method is to use arsenic mixed with white corn meal. Rats are naturally thieves, so it is best to let them steal it. After thorough mixing by shaking the arsenic and corn meal together in a box, use a small scoop, place one or two ounces in a small bag and tie the mouth. Not only will the rats take it more quickly this way, but it also serves to tell how much has been eaten. Grain impregnated with thalium sulphate can also be used successfully in the same manner.

A virus specific for rats was developed by the Pasteur Laboratories and proves highly efficacious if used according to instructions. It is not to be relied upon to exterminate all rats, however, as often there will be one rat or a family of rats that possess natural immunity to the virus. Phosphorus paste is also a valuable exterminating agent. The best method of using this highly poisonous preparation is to spread it generously on a crust of bread. Cut into half-inch squares, place a certain number of squares, four or five, in dishes and distribute these dishes after the fowl and stock are locked in for the night. Be sure, however, to pick all dishes up in the morning before the fowl, dogs or stock are turned out. By using an unvarying number of squares in each dish it is possible to know how much of the poison has been eaten. When it is believed that all the rats have been killed, it is a wise precaution to leave several bags of the corn meal and arsenic mixture, as well as poisoned grain, to feed any new comers. These preparations will keep indefinitely if protected from moisture.

Flies next to rats and English sparrows are dangerous carriers of infection except in cold weather. The only successful way of combating this menace to public health is by exclusion with screens wherever possible. A spray consisting of Dalmatian pyrethrum powder soaked in kerosene and scented with oil of cedar is highly efficient and available under several trade names. This mixture may be made economically by mixing one pound of pyrethrum powder in one gallon of kerosene and allowing it to macerate for six weeks, then strain through cotton flannel; add one ounce oil of cedar. A good method of application is to use a vacuum cleaner or grooming suction outfit reversed to make a blower, and by this method break the spray into exceedingly fine particles. An effective procedure is to open the doors and windows at night, turn on a few lights and then sprinkle the adjoining yards and runs with water. When disturbed the flies immediately go towards the light. After they are in the building the doors and windows can be closed and the spray used. In this way the number can be reduced much more rapidly than by killing a few at a time that manage to gain admittance.

It must not be overlooked that the most important step in fly control is prevention. Manure heaps should be treated to prevent hatching. This can be done without affecting the fertilizer value of the manure. Sodium fluoride has been recommended and used for this purpose. There is also an oil called Kem-trates, that is equally efficient. It is marketed by a Chicago firm, Richard W. Leonard, Inc. This oil may be used also as an effective fly repellent and exterminator by diluting it with kerosene.

LET us not overlook those almost unnoticed and hardly ever even thought-about carriers—ants. Worker ants travel great distances in obtaining food for their colonies, and in their travels cross clean and polluted areas indiscriminately. There is no doubt but that they are responsible for the spread of much disease in kennels, chicken houses and hog-pens. The first step, wherever possible, is to prevent their entrance. This can be done only where solid concrete foundations are used. The smearing of some mucilaginous material just above the ground on the foundation will definitely inhibit ants. Further preventive measures consist of the use of poison or destroying their hills. Ant hills can be destroyed by punching holes with a crowbar about six inches from the edge, twelve to fourteen inches deep, and six inches apart. Place about one-half ounce of carbon disulphide in each hole and tamp the earth tightly around the opening. The diffusion of the gas will destroy every ant in the hill. However, the worker ants returning from their labors afield will not be destroyed, inasmuch as the escaping gas will repel them, and they then join other colonies. Where ant hills or runs cannot be successfully gassed the ants may be combatted by the use of various poisoned sweet substances. There are on the market highly efficient and poisonous substances which are supplied with cleverly designed containers, that will permit the entrance of the ants yet protect the contents from rain and dirt, as well as birds and animals. These may be placed in strategic positions where worker ants can obtain the poisoned food and carry it into the hills or colony center to be distributed by the queen ant to the rest of the inhabitants.

ONE further service to sanitation may be rendered by preventing the breeding of mosquitoes on one's premises. This can be accomplished without expenditure whatever, by using the oil drained from one's motor. Aside from a splendid method of disposal of this oil, pouring this used oil on all adjacent still pools in swamps and low land will also render a distinct service to mankind. The oil mentioned in connection with fly breeding prevention may also be used for this purpose and is equally efficient. One but need refer to the work of Kelser in encephalomyelitis in horses to appreciate the potential danger of mosquitoes as carriers of disease. Aside from yellow fever, malaria and filariasis in the South, there is no doubt but that they are carriers of some of our as yet not well understood diseases in the North.

HAVING considered motile foes the menace of which can be controlled or minimized through extermination, we may wisely turn our attention to a type of carrier or distributor that is equally dangerous, and in which the correction lies solely along educational lines—men.

Under this heading may be named veterinarians, attendants, visitors, etc. Perhaps the most dangerous type of carrier could be the careless veterinarian. This conjecture is made for the reason that in the performance of his work, the practitioner is more liable to contact infected kennels, stables, pens and premises, than are average citizens. There is a possibility of being a liability as well as an asset, through lack of proper precautions with one's wearing apparel, equipment and person. Hands, shoes, clothes and protective coverings, such as gowns, overalls, boots, gloves, etc., are all potential hazards as sources of contamination. Perhaps the most dangerous of these is the overalls. A veterinarian may walk into a contaminated kennel, stable, pen or field, take a perfectly clean suit of overalls from his car or kit, shove contaminated shoes down the legs; thereby contaminating the inner surface. These contaminated inner surfaces of the legs of the overalls came in contact with trousers and contaminated them. Other visits may then be made to premises where contamination is thought not to be present, and for that reason overalls not used. The contaminated clothing is thus worn into the uncontaminated premises with the possibility of disseminating contamination through

this oversight. The same thing may happen through the thoughtless use of rubber boots and shoe coverings which have not been thoroughly cleaned upon departure from contaminated premises. Driving gloves also constitute a menace, particularly the unwashable types, such as the fur or wool-lined ones, inasmuch as the hands almost invariably touch the patient at some time during the examination or treatment.

THE overall menace may be corrected by the use of a garment to which the writer has given the name of "Sanitary Button-On." This consists of an ordinary suit of jumperalls or pair of overalls that has had the inside seam of the legs ripped out and button and button-holes installed. By this method the clean garment is buttoned around clean trouser legs, and in this way protects rather than contaminates. If this type of working suit were adopted a greater degree of safety would be achieved.

The glove menace can be successfully combatted by the use of washable gloves for driving. If the weather be such that heavy, unwashable gloves are necessary, the use of a washable glove inside the heavy glove obviates the danger.

The foot coverings can be protected either by carrying more than one pair of rubber boots or overshoes, or the liberal use of a strong solution of mercury as a disinfectant.

The conscientious application of modern sanitary measures can be completely nullified by the failure to recognize the dangers that lurk in the careless use of clothing and equipment, as well as the rôle played by carriers that fly, crawl and run.

The principles of military science have been adapted to veterinary practice by Maurice Hall in his masterful presentation, "The War on Parasites." We can apply the same principles to our "war on motile foes to sanitation," thereby preventing diseases attributable to contaminated or infected environments. The destruction of breeding places, hills, nests, pools, etc., combined with a vigorous attack on the active carriers, as well as providing measures to repulse or prevent their entrance, is sound tactics.

JUST a few words regarding hospital sanitation. In addition to itinerant motile foes we have to combat ignorance, carelessness, thoughtlessness, and in some instances, downright laziness and neglect on the part of the personnel employed in veterinary hospitals. Constant vigilance is necessary for the protection of the animals entrusted to our care. Isolation wards as such are an utterly futile precaution unless attendants are compelled to either change clothing and footwear or protect them by proper coverings when working therein. It is a wise plan to have provisions for washing the hands conveniently arranged. It is also a wise plan to use paper towels. Aside from the fact that they are the only practical sanitary towel, they serve another purpose. The number used will give an excellent index as to the number of times attendants wash their hands. A further precaution is to have a mat saturated with mercurial solution at the exit of the isolation ward in order to immerse the soles of the shoes and rubbers worn by those leaving the ward.

All feeding and watering dishes should also be given careful attention. These utensils can be responsible for the spreading of contamination when not properly cleansed. A good practice is to carry out a program of four operations, i. e., rinse in cold water; soak in cold water; wash in hot soap suds; rinse in hot water. This method is sure to bring about a dilution of contamination, if it does not entirely eliminate it.

ONE more precaution is of utmost importance; this refers particularly to the protection of cats. Prevent any visitor or owner from touching or petting any animal in the hospital. One never knows where they have been or what they are carrying, and "an ounce of prevention is" certainly "worth a pound of cure" where cats are concerned.

JUST a word in closing. When you think you have eliminated or eradicated all pests, don't relax your efforts or vigilance. This admonition is also applicable to the supervision of employes. "Keeping everlastingly at it brings success."

A Discussion of the Proposed Dog Food Standards*

By JOHN W. PATTON,
East Lansing, Michigan

IN a recent report[1] of the National Dog Food Manufacturers' Association, prepared for the executive office of the Code Authority of the dog food industry, by Dr. George R. Cowgill and Mr. William E. Anderson, Sterling Hall of Medicine, Yale University, we find a few recommendations which appear worthy of discussion.

This writer appreciates the difficulty confronting the framers of adequate standards appropriate for dog foods and takes this opportunity to compliment the administrative authority of the National Dog Food Manufacturers' Association on their choice of scientific advisors and, in turn, to compliment these scientists on their progress in formulating these standards. Having no interest in the manufacture or sale of commercial dog foods, the present writer has, however, a keen interest in an augmented scientific knowledge of canine nutrition, in all measures for promoting a broader appreciation of the importance of nutrition and a greater availability of nutritious commercial dog foods.

It is approximately three years since our first articles on the status of commercial dog foods appeared in this magazine. From the first, we have stressed biological values. Such is our present attitude.

To quote these proposed standards of the National Dog Food Manufacturers' Association:

> With respect to the vitamins, the following minima are suggested:
> Vitamin A—Not less than 15 international units per 100 calories.
> Vitamin B (B_1)—Not less than 2 international units per 100 calories.
> Vitamin D—Not less than 4 international units per 100 calories.

I am fully in accord with the evident attempt to standardize the units of vitamins that a dog food should contain. I do not see, however, how we are going to do this, without *first* standardizing the number of calories a dog food shall contain.

WE observe in our analysis of 10 representative brands of canned dog foods (table I) that the calculated caloric values vary between wide ranges. One brand (C) contains 364.34 calories and another (L) contains 599.28 calories per pound can. The manufacturer of brand C, to comply with these standards, is required to provide approximately 55 units of vitamin A, seven units of vitamin B_1 and 14 units of vitamin D per can. His competitor, who makes a food of higher caloric value—for example, brand L—is required to provide approximately 90 units of A, 12 units of B and 24 units of D, or to have about 65 per cent greater vitamin content per can to attain the *same* standard. This places a penalty on the manufacturer of brand L—the high caloric food—and gives an advantage to the manufacturer of the food of the lower caloric value, brand C. Be it remembered this is in a highly competitive market, where price cutting is rampant.

Basing standards upon caloric content will not alter the fact that the unit of measurement still remains "a can of dog food." A can is a can to the average dog owner and he feeds it accordingly—buys it that way too. To him, it is one can, more or less, to a meal or per day. If the dog is fed one can of brand C per day, he will, obviously, get but little more than half the vitamin units he would get were he fed brand L. I would propose that every can of dog food, either with or in the absence of uniform caloric content, contain a unitage of vitamins sufficient in amount, on a kilo basis, to provide adequately for the average dog's nutritional requirement of these vitamins.

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TABLE I

CHEMICAL ANALYSIS OF 10 BRANDS OF CANNED DOG FOOD

Brand	Dry Matter %	Water %	Protein N-6.25 %	Carbo-Hydrates %	Fat %	Fiber %	Ash %	Calories*	
								Per Pound as Purchased	Calculated on 70% Water Content
A	30.51	69.49	8.49	16.91	1.25	1.18	3.86	512.52	503.95
B	30.31	69.69	4.37	20.84	2.26	.35	2.84	550.15	544.50
C	21.18	78.82	7.00	12.14	.41	.45	1.63	364.34	516.10
D	29.59	70.41	11.20	13.39	3.00	.41	2.00	569.13	577.00
E	25.19	74.81	7.08	12.39	5.04	.30	0.68	559.51	666.30
F	27.60	72.40	5.09	16.22	3.62	.03	2.40	534.90	581.40
G	25.99	74.01	7.28	13.05	5.13	.64	0.53	578.80	667.80
H	26.91	73.09	10.29	11.67	4.35	.28	0.60	576.53	642.70
K	26.90	73.10	10.30	11.66	4.36	.28	0.60	576.94	643.40
L	28.00	72.00	13.00	7.85	5.40	.25	0.55	599.28	642.10

*Conversion Factors 4-4-9.

Further, in assaying the material for its vitamin content, to determine if the above vitamin standard is met, it would seem that considerable difficulty may be encountered in the case of vitamin B. To illustrate: Brand C, containing 364 calories per pound, contains 26 grams of dry matter per 100 calories. One-half of this amount, or 13 grams, would have to be fed daily to provide one unit of vitamin B. It is obvious that it would be practically impossible to get rats, standardized for vitamin B assay, according to prescribed technique (Chase-Sherman), to consume this amount of food daily, thus necessitating concentrating the vitamin by extraction.

It is our opinion that two units of vitamin B per 100 calories of food, especially in food of low caloric value, are insufficient to provide for every biological function requiring this vitamin.

OF less practical importance, but considerable scientific interest, the following statement in the proposed standards intrigues one:

Vitamin C: Inasmuch as this factor is not required by the dog, it may be omitted from the food.

Does the dog not require vitamin C at all, or can he dispense with it in his food for the reason that he manufactures his own vitamin C? My understanding is the latter.

IN another paragraph pertaining to mineral standards, we find the following:

Inasmuch as the healthy organism regulates its food intake according to its energy needs, it is most desirable that the requirements of varying dietary essentials be expressed in relation to its energy-yielding value of the diet. *Protein* should be present in such amounts as to furnish not less than 15% of the total energy yielded by the food.

There is nothing in this standard to prohibit a manufacturer from using protein of vegetable origin or any other nitrogenous substance regardless of its nature or its biological value.

To fail to qualify protein leaves a loophole to even exclude meat, or meat by-products, and does not differentiate proteins of high or low biological value as perhaps a biological standard should. I would suggest that the standard for canned dog food specify a minimum of animal (meat) protein and place a minimum biological requirement on protein in general. Protein in an amount sufficient to furnish 15% of the total energy is a step in the right direction; however, is not this percentage based on human dietary requirements? Will a man-

ufacturer of dog food who abides by this standard necessarily meet the protein requirements of dogs?

IN still another paragraph, we find:

It is our opinion that it is unnecessary and perhaps unwise to make any specific requirements concerning the amounts of carbohydrates and fat in canned dog food, or the ratio of these foodstuffs to each other.

In my opinion it is both necessary and wise to incorporate some standards for both carbohydrates and fat. It is certainly unwise to load a canned dog food with whole wheat or barley, for instance, or with any other carbohydrate either hard to digest or relatively undigestible, under normal conditions, in the intestinal tract of the dog. We might at least state that no carbohydrates shall be used in the canned dog food that pass through the digestive apparatus of a dog unaffected by digestion—as do both whole wheat and barley.

As for fat, I see no good reason why we cannot get away from the fat phobia that has affected the average dog owner and dog food manufacturer and set a standard of, say, four to five per cent—more in keeping with the optimal utilization and supplemental value of this ingredient. The analyses in table I furnish a case in point. In view of the great palatability of fat for dogs and the high degree of utilization of fats by this animal, a fat content of less than one-half of one per cent (actually shown by one food) seems a sufficient refutation of the statement "... it is unnecessary and perhaps unwise to make any specific requirement ..."

IN REGARD to the suggestion as to crude fiber, we quote the following pertinent paragraph:

It is suggested that the standard with respect to roughage be fixed at not more than 1 milligram per calorie of crude fiber and/or other indigestible material including keratin, which is present in great abundance in fish scales, horn and other epidermal appendages.

TABLE 2.—Actual and Suggested Fiber Content of 10 Brands of Canned Dog Food

Brand	Calories per 100 gm.	Fiber				Times Maximum Permitted
		Actual		Required by Code		
		Per cent	Milligrams per Calorie	Per cent	Milligrams per Calorie	
A	112.8	1.18	10.5	0.113	1.0	10.40
B	121.2	0.35	3.0	0.121	1.0	2.97
C	80.3	0.45	5.6	0.080	1.0	5.62
D	125.4	0.41	3.3	0.126	1.0	3.27
E	123.2	0.30	2.4	0.123	1.0	2.44
F	117.8	0.03	0.25	0.128	1.0	0.25
G	127.5	0.64	5.0	0.128	1.0	5.00
H	127.0	0.28	2.2	0.127	1.0	2.20
K	127.1	0.28	2.2	0.127	1.0	2.20
L	132.0	0.25	1.9	0.132	1.0	1.89

By reference to table 2, we observe how the recommended crude fiber compares with that in representative brands of canned dog food. The majority of these brands exceed, greatly, the maximum suggested. It is quite probable that it may be difficult to produce canned dog foods containing, as most of them do, a relatively high percentage of carbohydrates, cereals and vegetables, and keep the crude fiber down to a maximum of one milligram per calorie. It must not be forgotten that canned dog food is to a considerable extent, a cereal as well as a meat by-product.

IN A BOOKLET, "Definitions and Standards of Identity and Biological Value and Labeling Requirements for Canned Dog Food and a Plan for Their Enforcement," recommended by the dog food Code Authority, we find two paragraphs which appear worthy of discussion at this time.

Article II, Section 2, reads:

In executing this report the definitions duly promulgated for the administration and enforcement of the federal food and drugs act and the federal meat inspection act, respectively, shall be used, if and to the extent they are applicable and appropriate.

As readers know, canned dog foods are of two general classes:

1. Those inspected and passed by the Bureau of Animal Industry, United States Department of Agriculture, under the federal meat inspection act.

2. Uninspected dog foods.

The definitions promulgated for the ad-

ministration and enforcement (according to the above paragraph) apply directly to the inspected dog foods. The pure food and drugs act applies, obviously, to all foods—but mainly to human foods. The inspected dog foods are under the rigid control of the federal meat inspection act; the uninspected up to the present time, have had little, or no control exercised over them by the federal food and drugs act. We shall refer to this later.

Article III, Section 1, reads:

> Canned dog food may consist of any *edible* substance or of any combination of edible substances, which is fit and suitable for use as a dog food. [Italics ours.]

This paragraph applies to both inspected and non-inspected dog foods made under the Code Authority. Elsewhere in the Code recommendation it is provided that no dog food shall contain "any substance which has no reasonably justified use in a dog food." Hence, in the above paragraph the word "edible" possibly may be intended to serve an unusual purpose. Apparently it is susceptible of being used to offset the supposed advantage that the inspected product enjoys in the privilege of using, on the label, the phrase "Fit for human food." Manufacturers of inspected foods cry from the housetops that their products are "Fit for human food." Uninspected foods, according to the wording of the above paragraph, under no federal control comparable to that of meat inspection, may substitute the word "edible." There is probably little difference between the impression given in stating that a product is edible or that it is fit for human food. To the average person, "Fit for human food" and "edible" are synonymous. "Edible" might be used in this way to obtain one of the sales advantages of inspection without submitting to its restrictions.

WE DON'T like the word "edible" on a can of dog food, or in the advertising of it. It affords an opportunity for the manufacturer of a non-inspected food to infer that it is edible for man. Edible in this connection is unnecessary. Everyone expects a dog food—be it inspected or uninspected—to be edible for a dog. What point can there be in stating it other than to mislead?"

NOWHERE in this report on standards do I find more than a mention of vitamin B_2 (G) I cannot believe that this important vitamin was overlooked or purposely left out of the standard; for its importance, in a broad nutritional sense, is too well known to those framing these standards. Under present conditions it is most critical in the field of canine nutrition—perhaps for the reason that we have overlooked its importance too long—and further, many dog foods lack this vitamin. I am not in a position to state what the minimum intake of this vitamin should be. However, we should recognize its importance and acknowledge it in our recommendations. Goldberger, long ago, showed the disaster that supervenes upon its absence. Possibly a minimum standard for vitamin G in dog foods can be set from our knowledge of this vitamin in general nutrition.

I have in mind several canned dog foods now on the market, the growth curves for which vary *directly* with their vitamin G content. To eliminate it from consideration is, in my opinion, a grave error. To omit it entirely from a food is to condemn to death most dogs fed exclusively upon that food, as Goldberger has shown.

IN other paragraphs, we find the following recommendations regarding minerals, especially calcium and phosphorus:

> It is more difficult to formulate exact and correct standards of intake of the mineral nutrients mentioned above. Standards have been offered for the human species and these might be taken as a basis in attempting to formulate minima for the dog. From studies made on different species it is evident that those which are smaller in body size have relatively greater nutritive requirements, certainly for some, if not all, of the dietary essentials. If the two foregoing facts are utilized, one arrives at the following suggestions of minima for three of the most important mineral nutrients:
>
> Calcium: Not less than 30 milligrams per 100 calories.
>
> Phosphorus: Not less than 50 milligrams per 100 calories.

Also the following reference:

> The literature on nutrition suggests that it might be desirable to specify that calcium and phosphorus be present in an optimal ratio, such as, for example, that characteristic of milk calcium-phosphorus equals about 1:2.

Here we have a recommendation of 30 milligrams calcium per 100 calories and 50 milligrams of phosphorus per 100 calories —or a calcium-phosphorus ratio of 3:5. In the second instance we find yet another ratio suggested, 1:2, and a further reference to a calcium-phosphorus ratio equivalent to that of milk.

Milk is a good yardstick, perhaps, but what milk? When one thinks of milk in connection with canine nutrition, one naturally thinks of the milk of the bitch. I know of no normal milk with a calcium-phosphorus ratio of 1:2. Perhaps human milk with a ratio of 2:1 was in mind.

The calcium-phosphorus ratio of both dog's milk and of new born puppies[3] closely approximates a ratio of 1.5:1 or 3:2. In our opinion this ratio is more suitable for dog foods than either the 1:2 or 3:5 ratios suggested. Seldom indeed do we find the calcium content of milk *less* than that of phosphorus, except in some herbivorous animals that commence to eat soon after birth.

Further, a calcium-phosphorus ratio of either 1:2 or 3:5, as suggested, would seem inadequate in the critical stages of growth or lactation of dogs. We have in mind also the calcium-phosphorus ratio and vitamin D, and the availability of both calcium and phosphorus.

THE canned dog food industry is undergoing a transition. Canned dog foods of the immediate past were products chiefly of the canner and, to a very limited extent, of the meat-packer. The latter are now very much interested in canning dog food. In the near future we shall, probably, see the packing industry also a principal part of the canned dog food industry. Raw material may be difficult of procurement by others. There must be left no loopholes in the standard, that will enable any manufacturer not having a steady and uniform source of raw material (meat) within his control to evade either the standard or the issue of nutritious dog foods. Failing to qualify proteins leaves such a loophole. It permits a canned dog food without meat, or meat by-products; a condition hardly conceivable, at least, to the dog owner.

Since the various brands of canned dog food will probably vary, biologically, irrespective of standards proposed or established, it would appear that some effort should be made to grade dog foods according to nutritive quality—i. e., on a biological basis. It is conceivable that, irrespective of standards, there will be some manufacturers of dog food who will be satisfied to adhere to minimal standards and others who will continually strive by the application of independent nutritional research, to produce a superior dog food. It would be both unfair and unwise to stifle any such advancement of either knowledge or product by classifying such products on the same level with others adhering only to minimal standards.

THOUGH it is true that the healthy organism regulates his food intake largely according to its energy needs, this theory hardly holds true when applied to dogs, for the reason that the average dog has little opportunity to regulate its intake on this basis. It has to get along as best it can on the nourishment provided—or forage if it can. Then, too, the average dog, nutritionally speaking, is far from being a healthy organism. Perhaps this average condition will be changed, if and when we place dog food on a nutritious and biological basis.

The framers of appropriate standards for dog foods are confronted with many problems other than those of nutrition. There are manufacturing problems and problems of the manufacturer; there are superstitions and prejudices of the dog owner, as well as a lack of nutritional appreciation. There are schemers and chiselers to reckon with also. On the whole, it appears we are on the road to replace ignorance and superstition with scientific knowledge and information and to cure quackery by legislation.

References

[1]Cowgill, George R., and W. S. Anderson, 1934. A report prepared for the Executive Office of the Code Authority of the dog food industry.

[2]Roseboom, B. B., and J. W. Patton. *Journal, Amer. Vet. Med. Assn.*, 74:5, April, 1929.

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[3]Forbes, Keith. *T. Bul.* 5, *Ohio Exp. Sta.*, 168, 1914.

Abstracts

Narcosis in Cattle and Swine

General narcosis[38] and local narcosis of the peripheral nerves are inferior in their action to extradural (epidural) anesthesia in cattle. Chloral hydrate is not practical when deep narcosis is desired. Chloroform (inhalation) narcosis has given satisfactory results.

In boars and sows the narcosis with either chloroform or ether or with chloral hydrate has given satisfaction. Morphine and the rectal application of chloral hydrate have proved unsatisfactory.

The Lesions of Streptococcic Mastitis

Mastitis [39] begins as an acute galactophoritis. The mucous membrane of the sinus and galactophorous ducts is the site of the inflammatory process. The initial hyperemia is followed with granular proliferations, highly vascular, which become sclerotic islets. These islets remain after the cause of the process ceases to be active. In the course of this evolution important infiltration of the subepithelial connective tissue of the ducts and mobilization of the cells of the reticulo-endothelial system take place. The process corresponds to the lesions found in the lungs in bronchitis.

In the second phase, the mammary parenchyma is invaded. The walls of the acini and interstitial tissue then participate actively in the process. In different subjects and in different areas of the gland, the macroscopic and microscopic aspect may vary. The milk of the recently attacked quarter remains normal, to become watery, grayish, or yellow. Soon the acini augment in volume by the presence of their imprisoned secretion. The gland thus loses its alveolar character to become tubular and hepatized as in pneumonia. Everywhere the process of sclerosis replaces the granulations and thus renders the glands inactive.

Specific streptococci are especially numerous in the free or phagocytic exudates. They are found, but in fewer numbers, in the cellular material occupying the acini, in the lumen of the acini and in the interstitial tissue. Such are the habitats of the organism. The author believes that the streptococci act by decomposing the milk and thus explains the benefits derived from frequent milkings at the onset of the affection.

Aujeszky's Disease: Mad Itch; Pseudo-Rabies; Infectious Bulbar Paralysis

Aujeszky's disease,[41] known also by the names mentioned above, can be transmitted to pigs by feeding them viscera and brain tissue of laboratory animals which have died from experimental inoculation. The receptivity of pigs to the virus has been contested by most authors. However, in Holland, a recent outbreak of the disease occurred in swine before it spread to other animals. The symptoms were digestive (inappetence, vomiting, diarrhea, thirst) and nervous (depression, agitation, champing, salivation, paralysis) which ended fatally.

Except for gastric and duodenal congestion such as appears in rabies, there were no lesions found postmortem. The authors mention the experimental contamination accomplished in the United States.

Size and Form of Ovaries of Cows

In a study of 224 pairs of bovine ovaries, the author[40] was able to report certain important observations:

The ovaries of pregnant cows are larger and heavier than those of the non-pregnant, and in both classes the right ovary is larger than the left. Ovaries containing no ripe follicles, corpora lutea or cysts were found to be more numerous in the non-pregnant. Ripe follicles were found in both pregnant and non-pregnant cows. In the latter they were found more often in the left ovary.

[38] Albrecht, A., 1934. Die Narkose bei Wiederkäuern und beim Schwein (Narcosis in Ruminants and Pigs). *Tierärztl. Rundschau*, 40:44, pp. 765-766.

[39] Hemmet. *Berlinger Tierarztliche Wochenschrift*, Feb., 1933. abs. *Recueil de Médecine Vétérinaire*, vol. cx, no. 6, June, 1934.

[40] Runge, S.—Wiadomosci Weterynaryjne, abs. *Recueil de Médicine Vétérinaire*, vol. cx. no. 6, June, 1934.

[41] Remlinger and Bailly. Transmission de la Maladie d'Aujeszky au Porcelet (Transmission of Aujesky's Disease to Pigs). *Rev. Vét. et Journ. de Méd. Vét.*, 56:1, January, 1934.

Corpora lutea were found more often in the non-pregnant, and generally in the left ovary. On the contrary, in pregnant cows, corpora lutea were found more often in the right ovary.

The simultaneous presence of ripe follicles and corpora lutea were found in pregnant cows, particularly in the right ovary, and cysts were found to exist in both classes; but the simultaneous presence of cysts and corpora lutea were the more common in the non-pregnant. The simultaneous presence of cysts, corpora lutea and follicles were the more common in the right ovary of the non-gravid animal.

Streptococcus Infection in Treatment of Tetanus

In a horse, ill from strangles and tetanus simultaneously, it was noted that the latter disease ran a very mild course. Meditating on an explanation for the mild symptoms of tetanus, the author[42] began, experimentally, to combat cases of tetanus by artificially inducing strangles in the horse. The result was startling; the trism abated following the injection of streptococci and the horses recovered. After the strangles enzootic had disappeared, the streptococcus-types lost their efficiency. By cultivating *Clostridium tetani* and streptococci together, it was found that certain streptococci possess the faculty of suppressing the growth of *Clostridium tetani* and weakening its pathogenic powers.

Treatment of Genital Disease in Cattle

Success in the treatment of sterility[43] depends mainly upon an exact diagnosis. The use of the speculum in the examination of the *portio vaginalis uteri* is a simple and reliable method for the determination of endometritis. An accurate clinical examination of the genital apparatus will enable one to exclude [in Europe] very many cases of tuberculosis from the treatment. Endometritis catarrhalis is closely interrelated with the function of the ovaries. Metritis vaccination alone and also in connection with the treatment of the ovaries and the vagina produces a favorable curative effect upon the catarrhal endometritis. Pregnancy was induced in 77% of the cases treated.

Disadvantages of Hormonal Therapy

The breeder rightly objects to the entire hormonal therapy.[44] It cannot be desirable to develop a breed that can be maintained only by the artificial stimulation with hormones. It is not desirable to raise for breeding purposes the offspring of animals which had to be treated for sterility with hormones. Progress in breeding can be achieved only when animals selected for breeding are normal in sexual function and resistant to disease.

A Highly Multiparous Cow

Within the space of 35 months (from January, 1924, until October, 1928) one cow gave birth to 15 calves.[45] The first parturition yielded one calf. On the second and third parturitions, triplets were born. On the fourth and fifth parturitions the cow presented quadruplets. In each of the latter pregnancies one set of triplets and quadruplets, respectively, were aborted. The last delivery resulted in collapse. It seems peculiar that the afterbirth was delivered spontaneously excepting the last parturition. The majority of the calves were heifer calves. Another point of interest was that one service was sufficient for fertilization in each term of pregnancy.

Brucellosis in Horses

Horses[46] infected intravenously with *Brucella abortus* will harbor the germ from 9 to 17 days in the blood. In horses infected perorally (1200 a culture), the germ could

[42]Bosnic, L. Contribution to the Knowledge of the Pathology and Therapeutics of Tetanus in Horses (translated title). Abstracted from *Tierärztl. Rundsch.*, 40:767.

[43]Erisman, 1934. Über Pathologie und Therapie der Genitalkrankheiten des Weiblichen Rindes (Pathology and Therapeutics of Bovine Genital Diseases). Schweiz. *Arch. Tierh.*, 7:335-337; Abst. *Tierärztl. Rundsch.* 40:767.

[44]Koch, W., 1934. Hormonale Sterilitäts behandlung (Sterility Treatment with Hormones). *Deutsche Tierärztl. Wochenschr.*, 42:28, pp. 433-437.

[45]Palumbo, V., 1934. Contributo alla casistica dei parti plurigemini (Multipara Among Animals). *LaClinica Vet.*, 3: pp. 232-235.

[46]Schellner, 1934. Über die Bruzellose des Pferdes (Equine Brucellosis). *Tierärztl. Rundschau*, 40:44, pp. 762-764.

not be demonstrated in the blood. Serologically, however, the blood gave a positive reaction. The cutaneous infection, likewise, failed to reveal Brucella organisms in the blood, but gave a positive reaction on serological test. The author concludes that the complement fixation test is applicable for the establishment of the degree of infection present, while the agglutination, in connection with the complement fixation, is of value in the diagnosis of acute cases.

New Ether Inhalant Apparatus

An apparatus constructed by Weingart,[47] consisting of an ether container, a vent arrangement, an ether supply tube and three masks, facilitates the use of ether for the production of a rapid, uniform and relatively safe narcosis. The method is technically simple and saves the practitioner the employment of a trained assistant; it also speeds up the operation.

Researches on Aujeszky's Disease: Mad Itch

Jonnesco[49] studied the virus of mad itch isolated from a hunting dog. The virus proved to be pathogenic for the rabbit, the guinea pig, the white mouse, the dog, and the cat from all routes inoculated and also for chickens and pigeons from intra-cerebral inoculations. Hematological researches on dogs gave the following results:

On the average in 10 dogs studied, the authors found 25,000 leucocytes per cubic millimeter; and 7,000,000 red cells. The percentage of polynuclear neutrophiles 62, polynuclear eosinophiles seven, myelocyte neutrophiles one, lymphocytes eight, plasmazellen five, monocytes 12. A constant and very pronounced character of the polynuclear neutrophiles was the lack of granulations or entire absence of them, with large nuclei sometimes lobulated, swelled or poor in chromatin. The red cells presented anisocytosis, poikilocytosis and especially polychromatophilia with frequent normoblasts.

The constant and characteristic lesions of the disease were: thickening of the meninges of an inflammatory nature in all animals injected under the dura or into the cerebrum. In all cases there was an extremely intense fatty degeneration of the myocardium with fatty thrombi extending into the vessels of the heart, kidneys, lungs and bulb. The cardiac necrosis accounts for the sudden death from the disease.

Unusual Intestinal Concretion

The emergency slaughter of a horse ailing from colic[48] revealed a concretion having a diameter of 18-22cm and consisting mainly of magnesium ammonium phosphate, situated in the transitional zone leading to the small colon. Within the concretion was a movable phyto-bezoar having a diameter of 9-11.5cm. A triangular piece of metal was found as the nucleus of the inner concretion on roentgenological examination. In the shell of the outer concretion several pieces of metal wire, nails and stones were likewise found. The explanation for the occurrence of a concretion within a concretion is that around the original concretion there occurred an apposition, the external layer of which remained hard while the inner layer began to dry out and to shrivel till it became loose within the newly formed shell-layer.

The Treatment of Traumatic Synovitis with Ether

For intra-synovial injection, ether is a medicament of choice, whether the trouble is from direct cleavage or from adjacent processes. Excellent results were obtained in a grave case of suppurative arthritis[50] of the tempero-maxillary, two of the metacarpo-phalangeal, and one of the inter-phalangeal, three of the radio-carpo-metacarpal, and one of the femero-patellar articulations. Excellent results were also obtained in a case of traumatic synovitis of the calcaneum and four of the metacarpal sesamoids. The

[47]**Weingart, H., 1934. Die Aethernarkose des Schweines Mittels Einer Besonderen Apparatur (A New Apparatus for the Ether Narcosis of Hogs).** *Tierärztl. Rundschau,* 40:38, pp. 653-658; 40:39, pp. 674-677.

[48]Wirth, D., 1934. Konkrement in Konkrement (Roetgenological Examination of Intestinal Concretions). *Wien. Tierärztl. Wchnschr.,* 21:7, pp. 202-203.

[49]Démetre Jonnesco. Recherches sur la maladie d-Aujesky (Researches on Aujesky's Disease). Abs. *Rev. de Path. Comp. Année 34.* December, 1934, p. 1714.

[50]Marcenac and Carnus. Traitement des synovites traumatiques par l'ether (Treatment of Traumatic Synovitis with Ether). Bull. soc. prat., Feb., 1934, p. 51. Abs. *Rev. de Path. Comp. Année* 34, Dec., 1934.

ether is forced into every part of the synovial cavity and may be repeated as the occasion appears to demand.

Creolin Dangerous to Cats

On page 51 of the February issue of VETERINARY MEDICINE, a Connecticut Agricultural Experiment Station circular is quoted, recommending a 2% creolin bath for dogs and cats to rid them of fleas.

All veterinarians who handle many cats recognize that this animal is very susceptible to skin irritation and poisoning from coal tar preparations applied externally. In my opinion, it is not safe to use a 2% creolin solution to bathe cats. I doubt that any creolin solution strong enough to injure a flea could be used on a cat without injuring it, perhaps causing its death.

We have many cases brought to us, where cats have succumbed from the use of phenol, creolin or lysol flea powders or wound applications by the owner.

W. E. Frink.

Los Angeles, California.

Cleft Palate in a Toggenburg Milk Goat*

A doe kid, and one of triplets, all apparently normal at birth, was noticed to always immerse its nose up to its eyes when it drank milk from a pan. Otherwise it exhibited no unusual symptoms, and grew in proportion to the other two kids, all being hand fed.

When the kids were approximately a month old and had started to eat grain and hay it was noticed that masticated food came out of the left nostril of this kid when eating. Examination revealed that it had been born with a cleft palate. Due to this defect it was donated to the Dairy Department of the University of Missouri for experimental purposes.

The kid did not thrive on solid food, and at the age of ten months died from stomach worm infestation.

It will be observed from the illustration that not only is the left nasal passage exposed the entire length by the cleft, but that the right is also partly exposed. In addition, the left nasal passage is filled with freshly masticated grain and hay.

Cleft palate in a pure-bred, nine-months-old, Toggenburg milk goat. (a) Food; hay and grain collected in the left nasal passage. (b) The Nasal Septum. (c) Approximate point of termination of the soft palate in a normal animal. (d) Epiglottis.

Cleft palate is probably a common condition occurring in domestic animals. To the author's knowledge, however, this is the first case reported in pure-bred milk goats. Of course this kid could not suck and but for the fact that it was hand fed, it might have perished without the cleft palate being discovered.

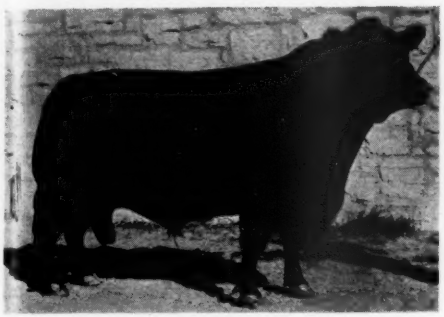
The case should be of interest to veterinarians who have these valuable little animals under their case. Keeping the possibility of cleft palate in mind may assist practitioners in arriving at a correct diagnosis in case they should experience cleft palate in any animal.

Columbia, Mo. A. J. Durant,
Veterinary Department,
University of Missouri.

*Contribution from the Department of Veterinary Science Missouri Agricultural Experiment Station. Journal Series No. 392.

Pododermatitis of Cattle

Pododermatitis may be defined as an inflammation of the digits and interdigital spaces in hoofed animals. In cattle, this condition may be brought about by puncture wounds from sharp sticks, stones, and loose wire, overgrowth of the claw, irritation of stable filth, impaction of soil between the claws, or by any substance becoming wedged



Pododermatitis in a Champion Angus Bull.

between the toes and causing inflammation and softening or ulceration of the skin in the interdigital space. This permits the entrance of the organism *Actinomyces necrophorus,* which is commonly present on tissues that come in contact with the soil.

Various forms of treatment are used for relief of the condition. If the inflammation does not extend beyond the skin, mild treatment, such as powders, antiseptic packs of biochloride of mercury solution (1:1000), and flax seed meal or bran poultices may be used. If the joint is seriously involved, it is necessary to amputate the affected digits.

THE effectiveness of the mild treatment may be illustrated by the following:

September 25, 1934, Mr. J. W. Hollinger, from Chapman, Kansas, brought a purebred Angus bull to the veterinary clinic of Kansas State College. This animal showed a severe inflammation of the skin of the interdigital space of the left hind foot, and was very lame, although none of the deeper sensitive structures such as the coronary band or laminae of the foot were affected. This animal was to be shown at the American Royal Livestock Show in Kansas City, Kansas, the following month, hence the owner was very anxious to obtain complete recovery promptly without any blemish. The foot was immediately washed thoroughly with soap and water to remove all dirt and filth from the inflamed area. A flax seed poultice was applied to the foot, and allowed to remain *in situ* for 24 hours, after which the foot was again thoroughly washed and a fresh poultice applied. This procedure was carried out for seven days; the inflammation subsiding progressively. The animal was able to walk about with little noticeable lameness, and was dismissed from the hospital the eighth day. It placed second in the show.

TO ILLUSTRATE the radical treatment, it is desirable to refer to a similar case presented at the college hospital. March 19, 1933, the same owner presented an aged Angus bull for treatment. The animal was unable to bear any weight on the left hind foot. On examination it was noticed that the joint on the medial claw was involved, and several fistulous tracts were traced to the joint. The coronary band was loosened, and much of the tissue in the area was necrotic. The hair was shaved from the foot, and a pack of boric acid and iodoform (10:1) was placed on the foot. The following day, the radical operation, as given in Dollar's Veterinary Surgery, was performed. This operation is amputation of the claw. The aftercare consisted in packing the foot with a boric acid-iodoform dressing, and flushing the entire wound with glycerin and Lugol's solution (3:1) daily. Complete recovery followed in one month.

The economic importance of pododermatitis, or foot-rot, lies in the severe loss from the long period of inactivity of the affected animal, loss of condition and weight, and the lessened milk production in lactating cows. Much of this loss may be prevented if the owners will keep feed lots, stable yards, and corrals free from loose wire, sharp sticks, etc. Another factor in loss prevention is immediate treatment of all cases of lameness as soon as they are noticed.

Clarence Schmidt,
Manhattan, Kans. K. S. C., '35.

NEW YORK VETERINARY CONFERENCE

The twenty-seventh Annual Conference for Veterinarians was held at the New York State Veterinary College, Ithaca, New York, on January 10-11, 1935. The attendance reached a total of 303; a new high mark.

The meeting of the first morning was presided over by Dr. R. R. Birch. Dean Hagan opened the Conference with a review of the progress in the control of animal and human diseases during the past thirty years. Dr. H. S. Cameron followed with a presentation of his work with Trichomonad infection of cattle. Prof. F. B. Hutt of the Poultry Department then gave a very instructive and interesting discussion of certain hereditary lethal characters in animals. The subject of the use of vaccine-virus and hyperimmune serum in canine distemper was discussed ably by Dr. C. R. Stockard of the Cornell Medical School. The speaker has had considerable experience in the use of these agents, having vaccinated nearly 800 dogs in his kennels. In his experience the immunization is 98 per cent effective when gien to animals three months of age or older. In younger animals the results are not so satisfactory. The morning session was concluded with a review by Dr. Dukes of the different types of intestinal motility. This talk was illustrated by a motion picture.

Dr. E. L. Brunett presided for the afternoon session. Dr. H. C. Stephenson opened the program with a discussion of the various genito-urinary antiseptics. Dr. W. W. Dimock followed with an able presentation of the control of parasitism in horses. The speaker has wide experience in this field and was able to give some very practical and sound methods. The subject of poll-evil and fistulous withers was discussed by Drs. Frost and Errington. The authors hold that the radical operation coupled with internal arsenic medication, is the best method of treatment. Drs. Gibbons and Fincher described their results with vaccines in the control of Bang's disease. Dr. E. F. Schroeder of the Angell Memorial Hospital, Boston, followed with an unusually interesting and practical talk on the use of the Thomas traction splint in the handling fractures in small animals. The paper was illustrated by many case reports. Dr. F. D. Holford presented the different methods of fortifying milk and the effect upon the vitamin content. The afternoon session ended with a motion picture depicting the operation of the "roto-lactor" of the Walker-Gordon Laboratories.

Dean Hagan presided at the evening meeting at which Dr. C. R. Stockard addressed the members on the subject of inheritance and endocrine glands in animal form and structure. The paper was highly interesting and well received. The evening closed with meetings of the various alumni groups, and a smoker.

The entire forenoon of the second day was devoted to an excellent clinic. A wide variety of clinical material was at hand, and the time was very profitably spent by everyone. Among the clinical demonstrations was the genital examination of mares by Drs. Dimock and Way, the use of the traction splint by Doctor Schroeder, and mastitis by Drs. Udall and Johnson. Others giving demonstrations were Drs. Milks, Stephenson, Frost, Errington, Sunderville, Baker, Brunett, Williams and Prof. Asmus.

Doctor D. H. Udall presided in the afternoon. Dr. E. L. Brunett opened the program with a paper on poultry disease control, followed by Dr. R. R. Birch who spoke on recent developments in Bang's disease control. Dr. W. W. Dimock next gave an instructive address on breeding problems in mares. The discussion was very timely and much interest was displayed in the many points brought out. Dr. H. J. Milks next discussed urinary calculi. The formal program closed with a paper by Dr. H. B. Leonard on the present status of cattle disease elimination under the Jones-Connally bill. This presentation was the subject of considerable discussion.

The annual banquet in the evening was presided over by Dr. J. N. Frost. The first speaker, Dr. R. S. MacKellar, president of the A. V. M. A., brought out the international aspects of veterinary medicine. Prof. L. A. Maynard then gave an account of his observations in rural China, followed by Prof. M. C. Bond who reviewed the trends in livestock production and prices of the past fifty years.

This brought to a close what was probably the most successful Conference from the standpoint of attendance, character of the material presented, and interest shown.

At the midyear commencement of the Colorado Agricultural College held on January 18, 1935, Esten B. Orme and E. Ted Reiser received the degree of Doctor of Veterinary Medicine.

THE FARTHEST SOUTH VETERINARY MEETING

The Ladies' Auxiliary to the State Veterinary Medical Association of Texas convened concurrently with the Texas Association January 21 and 22, at Kingsville, Texas.

Mrs. J. K. Northway, whose husband is veterinarian on the famous King Ranch, entertained the ladies with a luncheon in her beautiful home on the King Ranch.

The Chamber of Commerce entertained with a dinner, all of Kleberg County food, at which the male chorus from the College of Arts and Industries at Kingsville rendered several vocal numbers that were thoroughly enjoyed. As toastmaster, Dr. A. T. Kinsley kept the party in high good humor.

The ladies enjoyed the novelty of a chuck wagon dinner tendered by the Rotary Club of Kingsville and held on the King Ranch.

The Texas ladies are proud of the fact that theirs is the first organization affiliated with any state veterinary association to adopt a membership emblem pin.

New officers elected were Mrs. T. O. Scott, Waco, Texas, President; Mrs. P. W. Burns, College Station, Texas, First Vice President; Mrs. H. C. Gale, Fort Worth, Texas, Second Vice President; Mrs. U. E. Marney, San Antonio, Texas, re-elected Secretary-Treasurer.

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goes into the dog food you recommend. Have your formula packed on a cost-plus basis by the packers of Silver King.

Here, where we are qualified by hospital training, packing experience, modern equipment and raw food supplies, you can obtain the service you need. Send us a formula for quotations.

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The Veterinary Division of the Kansas State College recently received a complimentary write-up in the college paper, *The Kansas Industrialist,* in which it was pointed out that the Division is paying the state of Kansas good dividends on its investment in buildings, equipment and salaries, particular mention being made of its development of blackleg aggressin, a vaccine for infectious enteritis of cats and the treatment of 12,000 to 15,000 animals annually in the clinic.

INLAND EMPIRE VETERINARIANS ORGANIZE

The veterinarians of Eastern Washington and Northern Idaho have organized an association known as the Inland Empire Veterinary Medical Association. The meeting was held at the State College of Washington, Pullman, January 12, 1935. Twenty-two veterinarians attended. The following officers were elected: President, E. E. Wegner, Pullman; vice president, H. A. Trippeer, Walla Walla; secretary, E. M. Gildow, University of Idaho, Moscow.

The Southwestern Iowa Veterinary Association held a meeting at Creston, November 14th, at which Prof. Eichling of Ames discussed the Government's Cattle Buying Program. Other contributors to the program were: Drs. J. W. Haxby, C. C. Franks, R. M. Hofferd, J. A. Barger, J. D. Ray, P. O. Swanson, H. A. Seidell, R. W. Jackson, J. W. McElroy and J. J. Moore.

"IT MUST 'A BEEN SUMPIN' I 'ET--"

"THOSE unbalanced table scraps again, probably. Never know when I'm going to get a meal that disagrees with me. And is my head swimming today."

Poor fellow. Can't help himself and often, unfortunately, little helped by correct but elaborate diet instructions simply because the owners lapse back into their old feeding rut after a few days.

Here's a suggestion for such cases, Doctor—50% to 75% of Miller's Kibbles (containing Fleischmann's Irradiated Dry Yeast) to assure the correct basic diet, with table scraps, or meat if desired, to vary the diet. It's an easier plan to follow and produces excellen results.

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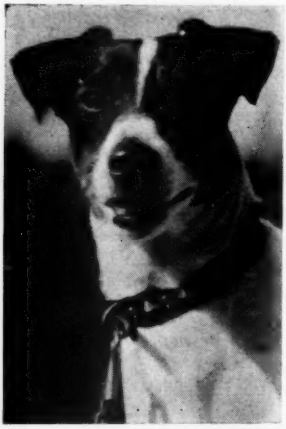
for your own testing purposes

INTERMOUNTAIN VETERINARIANS HOLD SUCCESSFUL MEETING

The eighth annual meeting of the Intermountain Livestock Sanitary Association was held at Ogden, Utah, on January 3, 4, and 5 with President E. A. Bundy of Ogden in charge. The conference was pronounced among the most successful yet held at Ogden and approximately 55 livestock sanitarians and veterinarians were in attendance. The following appeared on the program: Mr. J. Jellison, Rocky Mountain Laboratory, U. S. Public Health Service, Hamilton, Montana. Dr. Ethelyn O. Greaves, Utah Agricultural College, Dr. W. T. Huffman, U. S. B. A. I., Professor R. J. Becraft, Utah Agricultural College, L. E. Swanson, U. S. B. A. I., Dr. J. Farquharson, Colorado Agricultural College, Dr. Charles E. Salsbery, Kansas City, Missouri, Dr. Cliff D. Carpenter, Los Angeles, California, Dr. Hugh Hurst, Utah Poultry Producers Association, Lyman H. Rich, County Agent, Provo, Utah, Dr. W. H. Hendricks, Utah State Veterinarian, Dr. J. T. Dallas, U. S. B. A. I., Boise, Idaho, Dr. D. E. Madsen and Dr. O. G. Larsen, Utah Agricultural College.

Dr. L. E. Swanson of Salt Lake City was elected President for the ensuing year. Dr. W. T. Ruffman of Salt Lake City was elected 3d Vice President and Dr. D. E. Madsen of Logan, Utah, was re-elected Secretary-Treasurer.

A Clean, Wholesome Food that Dogs like



For thirty years Milk-Bone has been a stand-by with breeders and owners who want their stock to STAY healthy, clear-eyed and full of pep. It is made of wholesome beef meat, milk, cereals and food minerals in correct proportions. Dogs like it—for its flavor and because of its hard, crunchy, bone-like form. It's concentrated nourishment in a highly economical form. Begin now to give Milk-Bone a substantial place in your dog's diet. For a free sample, send a postcard to: Milk-Bone Bakery, National Biscuit Company, Dept. L-335, 449 West 14th St., New York City.

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The exotic, fairyland of the movie studios at your very fingertips—20 minutes from the magnificent blue of the Pacific Ocean—and just 25 minutes from downtown Los Angeles—the Christie offers you every fine hotel comfort and luxury at low cost. You'll like Hollywood, California and the Hotel Christie.

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OHIO STATE VETERINARY CONFERENCE

The Ninth Annual Conference of the College of Veterinary Medicine, The Ohio State University, will be held March 20, 21 and 22, 1935. This year, as formerly, the program is quite an extensive one and in its presentation it includes some of the foremost veterinarians and educators in this country. The entire three-day period will be devoted to the discussion of topics of vital importance to every veterinarian who can be present. A special effort has been made in arranging the program so that its quality and variety will appeal to all veterinarians.

The program this year has been formulated for the purpose of giving to the practitioner the latest developments in veterinary medicine. A demonstration program will be given on the afternoon of the third day which should prove an added attraction to all interested in the practical side of veterinary medicine. This part of the conference will be for the purpose of definitely illustrating some of the important problems confronting the practitioner at the present time.

It is generally conceded that such intensive short courses provide necessary educational opportunities for the busy practitioner. Now is the time to prepare for the busier days ahead. Those in charge of the conference hope a large number avail themselves of this opportunity to receive the very latest information concern-

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ADVICE

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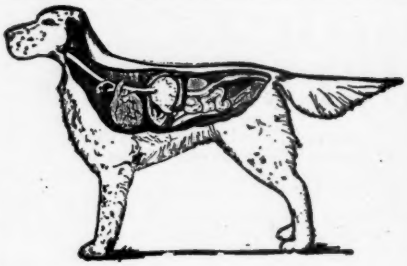

From experiments on living animals have come two sensational discoveries—bearing the highest commendation and solving two problems that have long vexed those who feed dogs. Announcement of these last month found veterinarians alive to the importance and eager to try the Food that contained them.

1 Stabilized Vitamines

A new patented process, approved by the Food Committee of the American Medical Association, now seals vitamines A, D and G with a protective coating that preserves their potency almost indefinitely. No need to tell you of the essential part vitamines have in canine nutrition—nor how quickly they usually oxodize in a dry food. The new process now enables you to know that the vitamine strength is adequate WHEN GAINES FOOD IS FED.

2 Starch-splitting Enzymes

Almost magically these enzymes split starch cells in the presence of moisture—liquefying them—taking the place, as it were, of the ptyalin lacking in canine saliva. This removes one of the big difficulties in feeding dogs—how to give them the benefits of cereals, vegetables and other starchy foods without danger of skin troubles, loose bowels and the like.

These discoveries are so new that we expect them to be challenged, especially by professional men. Proof awaits you here. Don't dismiss these improvements as "impossible"—drop us a line for full details—and we will include professional samples. (Also details, if you wish, of our wholesale proposition open to one veterinarian in each community.)

Hundreds of veterinarians in the past year have investigated Gaines Foods—the granular Meat and Milk Meal and the hardened Krunchon. Most of them have found them worthy of their professional recommendation; and many have built up profitable side-lines by selling them to their clients. May we send you full details—and samples? Please mention VETERINARY MEDICINE when writing.

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COMPREX
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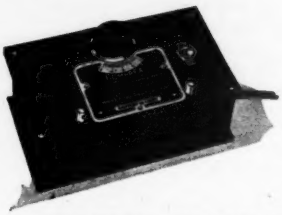

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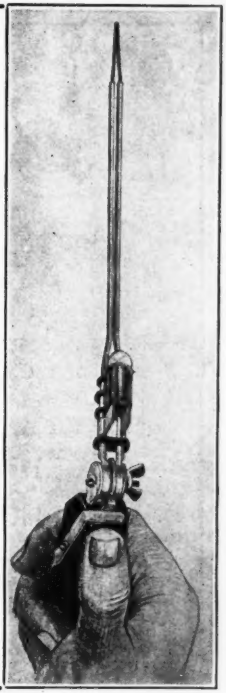

ing many of the real problems in their various fields of activity.

Variation of the subject matter from year to year is desirable in order to present timely topics and also to cover many phases of veterinary medicine in as short a period of time as possible.

These short courses are sponsored by the College of Veterinary Medicine believing it can render a real service to the live stock industry through the veterinary profession. In the past years the attendance has been gratifying to those interested in promulgating these courses. The interest manifested in the programs and the various discussions entered into by those in attendance has been a source of much gratification also. An invitation is hereby extended to all veterinarians to be present on this occasion, to receive what we feel sure, will prove much of value from an educational point of view.

Mrs. Minnie W. Ellis, wife of Charles Ellis of St. Louis, Missouri, died on December 15, 1934. She is survived by Doctor Ellis, a son, a daughter and two sisters.

A new veterinary hospital and outdoor kennels were recently equipped by Dr. P. H. Browning, San Jose, California.

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Use it, as many practitioners have learned to do, in catarrhal endometritis. It is near specific. Fistone is equally efficacious in localized suppurative infections encountered in equine practice, such as Fistula of the Withers, and of poll, and in quittor.

Fistone is administered with the feed, is inexpensive and within the reach of all veterinarians.

The Fistone and Appliance Company,
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Trial Order—one dozen boxes (once only)	$ 8.00
Regular price—one dozen boxes	10.00
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PROTECTS YOUR HEALTH
MAKES YOUR WORK EASIER

Veterinarians exposed to vaginal secretions of cows affected with genital infections may develop an occupational eczema due to sensitization of the skin of the hand and arm. The affliction is painful, annoying and disabling.

Not a few veterinarians have had to discontinue practice until the dermatitis subsides, or avoid making vaginal exploration except with rubber gloves which sometimes fail from tears or from exposure before the gloves have been put on or after they have been removed.

A perfect antiseptic and protectant that leaves a film on the user's skin.

Just sprinkle on the moistened hands and wet them. Not a soap.

Viscogen not only enables a veterinarian so afflicted to continue bovine practice but prevents the disease from developing if used as a routine measure, just as one must use a soap or an oil before penetrating the genital path.

BUT

Viscogen used as a soap powder combines its protective action to the highest degree of oil-like viscosity (slipperiness) which makes exploration easier than any product that can be employed for that purpose. It may be used on instruments (catheters, irrigating hose, sounds, stomach tubes) or on a prolapsed uterus to make its reposition easy, etc., etc.

Dozen 6-ounce Sifter Top Cans.....$3.00

A product for every emergency bag; for every hospital.

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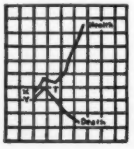
Tonamine builds up the strength of convalescent animals and undernourished puppies. Restores the appetite of run-down small animals. Successfully offers Vitamins B, G and D as a supplement to regular diet. Also is rich in food value and good for distemper. Tonamine is the ideal reconstructive.

Chart at right shows what a daily dose of only 3 cc. of Tonamine will do for a rat whose system has been depleted of Vitamin B Complex. Rat X fed Tonamine in addition to Vitamin B free food. Rat Y fed Vitamin B free food only. Write for free booklet!



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ARMY VETERINARY SERVICE

Captain Ernest E. Hodgson is relieved from duty at Ft. Reno quartermaster depot, Ft. Reno, Okla., at such time as will enable him to proceed to San Francisco, Calif., and sail on transport scheduled to leave that port on or about March 12, 1935, for the Hawaiian Department, for duty.

Colonel Alfred L. Mason, Lt. Col. Burton A. Seeley and Maj. Henry E. Hess are relieved from further detail as students, the Army Veterinary School, Army Medical Center, Washington, D. C., effective upon completion of their present course of instruction. Colonel Mason will proceed to New York, N. Y., and sail on transport scheduled to leave that port for San Francisco, Calif., on or about February 19, 1935; upon arrival in San Francisco he will report to the commanding officer Presidio of San Francisco for duty, and in addition to report to the commanding general San Francisco port of embarkation for duty as port veterinarian and to the commanding general Ninth Corps Area for duty at his headquarters. Lt. Colonel Seeley will proceed to Ft. McPherson, Ga., and report to the commanding general, for duty and in addition to report to the commanding general Fourth Corps Area for duty at his headquarters. Major Hess will proceed to Fort Bragg,

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Tolyl-Azo-Diamino-Pyridine-Hydrochloride

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The profession is acclaiming the powerful bactericidal action of Azamine for lasting relief of these conditions. Given orally to small or large animals, it acts by way of the blood stream directly attacking invading organisms . . . especially in infections involving the intestinal and urinary tracts and the skin. There is no toxicity or irritation.

Azamine is economical as small doses act so rapidly and so effectively. Also suggested in treatment of cystitis, retained placenta, vaginitis, gastro-enteritis, coccidiosis, septicemia, mastitis and for topical applications.

Packaged—⅓ gr. Capsules and ⅓ gr. and 2.2 gr. Enteric Coated Tablets in 50, 250, 500 and 1000. Available at your supply house or from

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N. C., and report to the commanding officer for duty.

Each of the following-named officers of the Veterinary Corps is relieved from further detail as a student, the Army Veterinary School, Army Medical Center, Washington, D. C., effective upon completion of his present course of instruction, is then assigned to the station as indicated after his name, and will proceed at the proper time to New York, N. Y., and sail on the transport scheduled to leave that port for San Francisco, Calif., on or about February 19, 1935; upon arrival in San Francisco, will proceed to the station specified and report to the commanding general for duty:

Major Stanley C. Smock, Fort Lewis, Wash.

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CANINE DISTEMPER COMPOUND

"Dejem" is decidedly beneficial to dogs with DISTEMPER and also controls the severe sickness following inoculations.

"Dejem" 16 oz. size, 1 bot. .....$ 2.75
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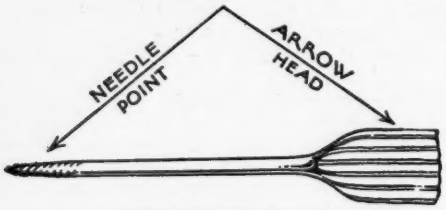

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Length	Per 100	Per 1,000
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2¾ in. Thick	1.00	7.75 Postpaid
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The thirty-first annual meeting of the Colorado Veterinary Medical Association was held in Denver, Jan. 17, 1935; during the week of the annual Western National Livestock and Horse Show, held in the same city, thus enabling the veterinarians to attend both meetings. The attendance was very good.

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Report on the International Veterinary Congress held in New York, August, 1934, by I. E. Newsom, Fort Collins; report of the meeting of the House of Representatives of state asso-

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ciations held during the International Veterinary Congress, by Dr. E. N. Stout, Fort Collins; the control of Bang's disease among range cattle, by Dr. Floyd Cross, Fort Collins; Poisonous Plants of Colorado, by Dr. L. W. Durrell, botanist, Fort Collins; a demonstration and lecture on the use of x-ray in veterinary practice by Mr. Roy Woods, Denver; problems relative to the fox industry, by Mr. Dave E. Gibbs, Monument, Colo.; tuberculosis and Bang's disease eradication in Colorado, by Dr. J. O. Wilson, Denver.

The following officers were elected for the ensuing year: Dr. E. N. Stout, Fort Collins, president; Dr. C. J. Hayden, Arvada, 1st vice president; Dr. T. H. Brady, LaJunta, 2nd vice

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president; Dr. B. R. McCrory, Fort Collins, secretary-treasurer. Members of the Board: Dr. H. E. Kingman, Fort Collins; Dr. A. N. Carroll, Pueblo. Two applicants were elected to membership: Dr. A. H. Groth, Fort Collins and Dr. N. F. Christensen.

B. R. McCrory, Sec'y.-Treas.

ILLINOIS VETERINARY MEETING

The 53rd annual meeting of the Illinois State Veterinary Medical Association will be held at Springfield, February 19-20, 1935, at the Leland Hotel. Among those who will contribute to the program are: H. C. Rinehart, Springfield; J. J. Lintner, Chicago; A. C. Bolle, Arenzville; R. E. Crossland, Neponset; H. C. Wadleigh, Seaton; Otto Stader, Geneva; C. L. Lehman, Flanagan; Frank J. Jirka, Springfield; J. D. W. A. Coles, Pretoria, South Africa; Mr. Wayne Dinsmore, Chicago; S. H. Hines, Hume; Frank Hare, Lexington, Ky.; Clem Pierce, Hubbard, Iowa; Mr. Ellis McFarland, Chicago; Ashe Lockhart, Kansas City, Mo.; S. H. Regenos, Zionsville, Indiana. There will also be a general discussion by members present.

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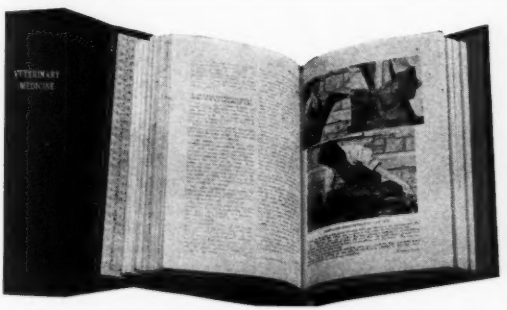

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